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CONTENTS AND SUBJECT INDEX

Special Study for General Physicians. S. Judd Beach, M.D., Portland, Maine....731

Allergy of the Upper Respiratory Tract in Infancy and Childhood. George Piness, M.D., and Hyman Miller, M.D., Los Angeles....734
Discussed by Dr. Pottenger.

Spontaneous Pneumothorax in College Students. Staige D. Blackford, M.D., University, Va....737

Prevention of Ignition of Anesthetic Gases. Philip D. Woodbridge, M.D., Boston; J. W. Horton, Sc.D., Cambridge, Mass., and Karl Connell, M.D., Branch, N. Y....740
Discussed by Drs. Tyler, Waters, Luckhardt and Horton.

Treatment of Pneumococcic Pneumonia with Concentrated Antipneumococcus Rabbit Serum. W. B. Wood Jr., M.D., Baltimore....745

Parathyroid Insufficiency with Symmetrical Cerebral Calcification. L. McKendree Eaton, M.D., and Samuel F. Haines, M.D., Rochester, Minn....749
Discussed by Drs. Albright, Bassoe, Macbryde, Haines and Eaton.

CLINICAL NOTES

Bacillary Dysentery Resulting from an Accidental Laboratory Infection. Oram C. Woolpert, M.D.; Homer F. Marsh, M.S., and Owen F. Yaw, M.D., Columbus, Ohio.753

COUNCIL ON PHYSICAL THERAPY 755

COUNCIL ON PHARMACY AND CHEMISTRY 756

EDITORIALS

Advances in Medical Education..861

Terminology in Graduate Medical Education....861

Conferences on Therapy....862

CURRENT COMMENT

What's a Doctor Worth?....863

Allergic Irritability in Rheumatic and Nephritic Patients....863

The Vitamin B Complex Unfolds.863

BUREAU OF LEGAL MEDICINE AND LEGISLATION 884

(Subject Index on next page)

MEDICAL EDUCATION IN THE UNITED STATES AND CANADA

Annual Presentation of Educational Data by the Council on Medical Education and Hospitals....757

Graduate Medical Education....773

Related Graduate Activities....785

Progress Reports by States....787

Essentials of an Acceptable Medical School....790

Essentials in a Hospital Approved for Training Interns....792

Essentials of Approved Residencies and Fellowships....794

Essentials for Approved Examining Boards in Specialties....799

Approved Examining Boards in Medical Specialties....800

Description of Medical Schools..825

Description of Schools of the Basic Medical Sciences....831

Hospitals Approved for Training Interns....832

Approved Residencies and Fellowships....842

ADVERTISERS' INDEX PAGES 62 AND 63

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SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics; "OS," Organization Section; "SS," Student Section.

Acid, ascorbic, required in peptic ulcer...ab-887
Adolescence, puberty in girls.....870
Advisory Board for Medical Specialties....*821
Akin, Charles V., appointment.....868
Allergy irritability in rheumatic and nephritic patients E-863
of upper respiratory tract in childhood..*734
American Academy of Ophthalmology and Otolaryngology *732; *733
of Pediatrics, graduate activities.....*785
American Association of Obstetricians, Gynecologists and Abdominal Surgeons.....867
of Railway Surgeons 867
American Board of Anesthesiology, Inc....*800
of Dermatology and Syphilology.....*801
of Internal Medicine, Inc.....*803
of Obstetrics and Gynecology, Inc.....*805
of Ophthalmology *731; *807
of Orthopaedic Surgery, Inc.....*810
of Otolaryngology *811
of Pathology, Inc.....*812
of Pediatrics, Inc.....*813
of Plastic Surgery.....*822
of Psychiatry and Neurology, Inc.....*814
of Radiology, Inc.....*816
of Surgery, affiliates.....*822
of Surgery, Inc.....*818
of Urology, Inc. *819
American College of Physicians graduate activities *785
American Sanatorium Association now called American Trudeau Society.....867
Andrewes, C. H., lectures on viruses.....867
Anesthesia, preventing ignition of gases by static spark *740
Angina Pectoris, Danielopolu's operation for.872
Army, U. S., medicomilitary inactive status training 868
Arteriography in neurosurgery.....ab-890
Arthritis, mecholyl iontophoresis in.....879
Associated State Committees on Postgraduate Education *785
Asthma in childhood.....*734
Beers, Clifford, resigns 867
Bernard, Claude, on glycogen formation in liver C-876
Bladder tumors, x-ray diagnosis; treatment ab-885
Blood, guanidine in respiratory diseases..ab-889
circulation, Congress for Research on....870
transfusion in bronchopneumonia.....ab-889
Board Examinations.....880
Book Notices.....881
Books Received.....Adv. page 56
Brain, calcification, with parathyroid insufficiency *749
surgery, infection during.....ab-888
British Medical Association, election.....868
Bronchopneumonia, transfusion in infant..ab-889
Brush Foundation, Dr. Zuck head of.....866
Bureau of Investigation.....875
Bureau of Legal Medicine and Legislation..884
Burns, liver necrosis after.....ab-888
Calcium lactate in parathyroid insufficiency.*749
Canadian Medical Association election.....868
approval of medical schools.....*764
Cancer, International Congress.....867
Carbohydrates as constituents of proteins..C-876
Celiac Disease 880
Chattahoochee Valley Medical Association..864
Child Welfare, International Association for.868
Chiropody schools, doctor's degree from...C-876
Chone-chondrosternon ab-887
Cod Liver Oil in parathyroid insufficiency..*749
Cornea, circumcorneal injection.....*733
Correspondence 876
Council on Pharmacy and Chemistry.....756
Council on Physical Therapy.....755
Deaths 873
Degree, doctor's, need legislation on using..C-876
M.D., when granted.....*767
Dermatitis from tetra-ethyl gasoline.....879
Diabetes Insipidus, ulcer from snuffing pituitary powder 878
Dietetics, course on, New York.....866
Dihydrotachysterol in parathyroid insufficiency *749
Dysentery, bacillary, in laboratory worker..*753
Embolism, pulmonary, x-ray signs.....ab-885
Encephalomyelitis, human equine.....ab-887
Estrogen, effect on menopausal flushes...ab-888
production during puberty.....870
Explosion from anesthetic gases.....*740
Fees, medical tribunal, Queensland.....871
Foot, clawfoot ab-890
Foreign Letters.....868
Fractures, vitallium for fixation.....ab-886
Gasoline, tetra-ethyl, dermatitis from.....879
Glycogen formation in liver, Bernard on..C-876
Goat's blood injection for gastric ulcer.....879
Gonadotropin, chorionic 756
Government Services.....868
Graduates by states.....*767
foreign, as interns, resolution on.....*772
Negro *771
number from 1905-1939.....*769
sex distribution *768
students in medical schools.....*769
with baccalaureate degrees.....*770
Graves, W. W., St. Louis Medical Society award to 865
Gynecologists, American Association.....867
French, Congress of.....870
Health resorts, physicians practicing at....872
unit (new), Mich.....865
Heart electrocardiogram 870
muscle injury, treatment 871
Heparin prevents thrombosis 868
Hospitals, administration course, Chicago..864
approved for residencies.....*794; *842
approved for training interns.....*792; *832
in war time, England.....869
maternity ward, isolate woman exposed to contagious disease 878
Industrial dermatitis from gasoline.....879
Shiga dysentery in laboratory worker....*753
wage scale of unions vs. physicians.....E-863
Infants, breast vs. bottle fed, superior?....877
advertising proprietary foods for.....871
Infection during intracranial operations..ab-888
focal, allergic irritability E-863
pyogenic, short wave diathermy in.....ab-886
Instruments, obsolete, collection.....865
Internships, hospital approved for...*792; *832
required by medical schools.....*767
Japanese-German-Italian Dictionary 871
Johns Hopkins University, grants to.....865
Kellogg Foundation, changes in staff.....865
Labor, isolating woman in, exposed to contagious disease 878
Laboratory infection, dysentery from.....*753
Lead, tetra-ethyl, dermatitis from.....879
Library, medical, facilities, England.....868
Licensure and doctor's degree.....C-876
of foreign graduates.....*772
Literature, foreign, translation bureau.....872
Liver, glycogen formation in.....C-876
necrosis after burns.....ab-888
Lungs infarction, x-ray signs.....ab-885
Malaria, quinine and atabrine for.....880
Marriages 872
Martin, James R., appointed professor.....866
Mecholyl iontophoresis for arthritis.....879
Medical Education.....*757
advances in E-861
curriculum *761
graduate activities by various groups....*785
graduate, clinical conferences.....*782-*784
graduate continuation study.*773; *778; E-861
graduate opportunities for Negroes.....*786
graduate, progress reports.....*787; E-861
graduate study at home.....*731
graduate study, federal grants for.....*786
graduate, terminology in E-861
length of course.....*761
preliminary work *757; *761; E-861
value of conferences on therapy.....E-862
Medical Examinations and Licensure.....880
Medical Syndicates, French, Confederation.869
Medicolegal Abstracts.....884
Meetings, Coming Meetings.....884
Meningitis, sulfanilamide and sulfapyridine in ab-886
Menopause, estrogen for flushes.....ab-888
Mental Hygiene, National Committee for, Mr. Beers resigns.....867
Methemoglobinemia from sulfanilamide...ab-886
Mutton bird oil, vitamins in.....871
Negro physicians, graduate opportunity for.*786
students and graduates.....*771
Nephritis, allergic irritability in.....E-863
Neurosurgery, arteriography in.....ab-890
News 864
Northern Minnesota Medical Association...865
Nose ulcer from snuffing pituitary powder..878
Ophthalmologist, general practitioner studying to become.....*731
Optometry schools, degree of doctor from..C-876
Oregon State Medical Society.....866
Osborne, Ward, fake uniform salesman....867
Pancreas, necrosis and duodenocholedochal reflux ab-889
Parathyroid insufficiency with brain calcification, treatment *749
Pediatrics, conference, Ky.....865
Peptic Ulcer, ascorbic acid required.....ab-887
goat's blood injection for.....879
medical treatment ab-885
Pharmacology, conferences on therapy....E-862
Physicians in civic posts, Kan.....864
industrial wage scale E-863
practicing at bathing resorts, Bucharest..872
practicing, continuation study for..*773; *778
practicing, lending library services for...*786
practicing, who becomes a specialist....*731
supply, Bulgaria 872
women *768
Pituitary powder, snuffing, cause of nasal ulcer 878
Pneumococcus infection, sulfanilamide and sulfapyridine in ab-886
Pneumonia, concentrated rabbit serum for..*745
Pneumothorax, spontaneous, in students...*737
Poliomyelitis, another million for fund.....867
report, Mich. 865
Potassium chloride as salt substitute.....879
Pregnancy, urine, chorionic gonadotropin...756
Prizes, American Association of Obstetricians and Gynecologists.....867
Capps 864
St. Louis Medical Society.....865
Trudeau Medal 864
Proteins, carbohydrates as constituents...C-876
Publicity and medicine.....889
Queries and Minor Notes.....877
Respiratory Tract, allergy in childhood....*734
diseases, guanidine in blood.....ab-889
Rheumatic Fever, allergic irritability.....E-863
Rowland, James M. H., retires as dean....865
St. Louis Medical Society award.....865
Salt, reducing in diet.....879
School, Medical, acceptable, essentials.*760; *790
approval in Canada.....*764
description *825
fees *771
foreign, American citizens in.....*771; *772
improvements in *761; E-861
internship required *767
number from 1905-1939.....*769
resurvey *761; E-861
statistics *758; *764
12 states without.....*765
Schools of basic medical sciences *760; *761; *764; *831
Society Proceedings.....884
Sofia University 872
Specialist, general practitioner who becomes.*731
Specialties, examining boards in.....*799; *821
hospitals approved for.....*794; *842
State Board Examinations.....880
Streptococcus infection, sulfanilamide and sulfapyridine for ab-886
nucleoprotein, allergic irritability.....E-863
Students, spontaneous pneumothorax in....*737
Students, Medical, birth place.....*763; *765
by states *767
by years, 1930-1939.....*770
distribution by sex.....*768
Negro *771
number dropping out.....*770
number from 1905-1939.....*769
part time, special and graduate.....*769
resident and nonresident.....*766
women *768
Sulfanilamide in children.....ab-886
methemoglobinemia and sulfhemoglobinemia due to ab-886
Sulfapyridine in children.....ab-886
Sulfhemoglobinemia from sulfanilamide...ab-886
Therapy, conferences on.....E-862
Thorax, chone-chondrosternon ab-887
Thrombosis, heparin prevention 868
Thyroid, neurohormonal cells in.....ab-890
Tonics and Sedatives.....Adv. page 48
Tonsillectomy in allergic patients.....*734
Tuberculin, allergic irritability E-863
tests in tuberculosis ab-889
Typhoid, exclusion; diagnosis.....ab-888
Uniforms—fake salesman 867
Urethritis, chronic, in women.....870
Vagina at puberty 870
Vital Statistics, mortality trends, Illinois...864
Vitamin B6 .....E-863
content of mutton bird oil.....871
War time, hospitals in, England.....869
Webb, Gerald B., Trudeau Medal to.....864
Workmen's Compensation Acts: pneumonia attributed to trauma.....Ml-884
Wound healing, urea therapy.....ab-886
Zuck, T. T., heads Brush Foundation.....866

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PROBLEMS IN SPECIAL STUDY FOR GENERAL PHYSICIANS

CHAIRMAN'S ADDRESS

S. JUDD BEACH, M.D.

PORTLAND, MAINE

The sore spot in graduate ophthalmologic teaching still seems to be the inadequate provision for training the general practitioner who is undertaking to become a specialist. One example will present the situation. Take the case of one physician for ten years in general practice. He then spent six months taking special courses at a mediocre eye and ear hospital. Although he had some doubts as to the quality of the instruction he had received, he emerged to specialize in ophthalmology and otolaryngology. Several years of experience have now increased his misgivings as to his qualifications. At present he wishes the certificate of the American Board of Ophthalmology but is more than simply dubious about his fitness to take the examinations. Yet by this time his hospital service and personal responsibilities preclude his taking time out for consecutive formal study. Members of the examining board who conducted conferences with possible candidates at recent instructional courses remarked on the frequency with which they were faced with variants of this problem and how little could be done about it.

Two rather distinct sorts of postgraduate instruction are now provided in our specialty. Neither entirely meets the needs of these men. The approved training for those who can get it is the complete integrated course. At its best it correlates formal study and didactic lectures with the clinical experience of a residence. It is designed to take the novice and after one or more years turn him out ready to undertake special practice.

In contrast to this there are what have been called "extension courses." These are usually one or two hours of rather elementary and often informal demonstrations. The time limitation holds such conferences to a restricted field. Their greatest value has probably been to bring to practitioners the newer points of view and discoveries. This sort of instruction has been made widely available by the various state medical societies with the encouragement and advice of the Council on Medical Education and Hospitals of the American Medical Association. They arrange short intensive brush-up courses in various community centers. Louisiana, for instance, is now bringing them to each councilor district. Two general methods have been followed, differing chiefly in arrangement. In the two methods the instruction is essentially the same. In one, the courses are given consecutively in the same place for a period lasting from a few days to a fortnight. Then the same instruction is repeated in some other locality. The other plan is the so-called circuit method. With this arrangement the first lecture, often with movies and clinics, is repeated in a different place every day for a week, moving around a circuit of perhaps five centers. During another week the second demonstration follows the same circuit. The entire series may require as much as ten such weeks.

Read before the Section on Ophthalmology at the Ninetieth Annual Session of the American Medical Association, St. Louis, May 17, 1939.

THE EXAMINING BOARD

For work in perfecting both the thorough courses and the short conferences, a debt is owed ophthalmologists that has been largely forgotten. Both types of instruction were developed under leadership in which the guests of honor of this section for the past two years were conspicuous. Dr. Edward Jackson and Dr. John E. Weeks, to whom last year's transactions were dedicated, and our two present guests, Dr. Lancaster and Dr. Greenwood, exerted a potent influence over the early progress of American postgraduate medical training. In large part this was through agency of the American Board of Ophthalmology, of which they were original or early members. Admittedly the necessity of preparing applicants to meet the requirements of the board has compelled teaching institutions to undertake more adequate instruction. Departments of graduate education in state universities and medical societies are frank in claiming that their courses, as one of them puts it, "are adaptable to the requirements of the specialty boards." Yet it should not be forgotten that this process started and had gained considerable headway during those ten uneasy years after our board was functioning preceding the organization of the next specialty board by the otolaryngologists. It was largely the resulting improvement of educational methods in ophthalmology during this critical decade of solitary effort by the ophthalmic board that persuaded our sister specialties to adopt the examining board system. There are now twelve such boards coordinated in the Advisory Board of Medical Specialties.

It might almost be taken as an omen that the American Board for Ophthalmic Examinations, as it was first called, was born in a rousing storm. The original appointees were Miles Standish, Alexander Duane and William H. Wilder from the American Ophthalmological Society; Wendell Reber, Walter B. Lancaster and Frank C. Todd of the American Academy of Ophthalmology and Otolaryngology, and Edward Jackson, Hiram Woods and E. C. Ellett, representing this section. Woods and Reber were meeting in Boston with Dr. Lancaster as the committee on organization when a tempest blew the skylight off the Lancaster residence

and later stalled the train on which Dr. Woods was returning to New York. The great tragedy was the loss of Dr. Reber. Worn out with his arduous labors he was seized with pneumonia in Memphis, where the first examination was held, and succumbed at the home of relatives in St. Louis. His well known generosity to his younger colleagues especially fitted him for service on a board organized chiefly to stimulate them to sounder scholarship. He was a man of international reputation and the year before his death had been a member of the council of the Oxford Congress.

Conceived in these trials, no stepchild could have been less welcome than this devoted board. Ophthalmologists as a group seem always to have been hardy nonconformists and they resented the slightest suggestion of what the columnists like to call regimentation. Many educators in particular felt the implied reflection on their methods and had no relish for the often difficult matter of revising their instruction. Then there were those who regarded the examination as an affront. This attitude has not yet entirely died out but it is less open because applicants are more conscious now that by showing it they invite suspicion of their ability to pass. Such a pose was made ridiculous at the outset by the insistence of Dr. Edward Jackson, while a member of the board, that he be examined before receiving the certificate. Legend hints that his colleagues approached with considerable hesitation the ordeal of giving this examination. Evidence of lack of sympathy with the activities of the board may be discerned in the minutes of its meetings. It was hoped, for instance, that the appointing societies would make appropriations to defray the expenses of organization. Quite definitely no funds were forthcoming, so that the original members not only gave their time but even paid their own transportation to the places of examination.

THE WORLD WAR

The trials of the board were immediately increased by the outbreak of the World War. The war had a somewhat mixed effect on the progress of graduate ophthalmologic education. It may have delayed the recognition of the importance of optics and visual physiology as a part of the curriculum. Of the many contributions to education of our guest of honor, Dr. Walter B. Lancaster, none is more peculiarly his than finally to have gained proper recognition for this subject. Not less than twenty years before it was segregated by the American Board of Ophthalmology as a separate part of the examination, Dr. Lancaster had read a paper before one of the major meetings on the role of physiologic optics in the training of ophthalmologists. Just what he said will never be known, as the subject was not at that time regarded as worthy of a place in the transactions. Probably the paper was not far different from the one in the records of this section for 1913. In it Dr. Lancaster calls to attention how visual physiology underlies most clinical procedures in ophthalmology and cites examples covering a multitude of fields, from refraction to lacrimal disorders. The board, however, was not yet ready to make it a coordinate subject. Dr. Lancaster was then commissioned as chief of the department of ophthalmology at Camp Devens and later was in charge of the research laboratory in aviation at Mitchel Field. It was not until his return to the board in 1932 that as part of a sweeping revision of the method of examination by the board he established optics and visual physiology as a definite division of the examination. As an immediate consequence, many schools and hospitals have already installed laboratories in this subject and established courses of varying degrees of excellence.

The war gave to our other guest of honor, Dr. Allen Greenwood, an experience which led to the establishment of thorough didactic training for residents and the inauguration of the now popular short conferences. After serving in the British army in 1915 as an ophthalmologist with the Harvard Unit, he became senior consultant in ophthalmology for the American Expeditionary Forces. It therefore fell to him to arrange for the instruction of ophthalmologists of varying attainments serving with the troops. He planned courses to be given by Dr. Lister at Boulogne and formulated the orders to the Surgeon General's Office under which Dr. Lee M. Francis proceeded to Paris to supervise the instruction for ophthalmologists. This experience inspired Dr. Greenwood to obtain for residents at the Massachusetts Eye and Ear Infirmary a course of formal instruction in relation to cases observed in the wards. This course did much to give the infirmary its early and lasting distinction as a teaching hospital.

The success of the intensive courses in the army also suggested to him the possibility of instituting something similar in connection with meetings of the American Academy of Ophthalmology and Otolaryngology, of which he had been president in 1918. Absence on foreign service had prevented his occupying the office. Holding it, however, made him for three years a member of the council. Printing of the minutes of the academy had just begun during the secretaryship of Dr. Luther C. Peter, later chairman of the examining board. They intimate that Dr. Greenwood tried in 1919 to induce the council to inaugurate this sort of instruction. Though the plan had also been suggested by Dr. Secord H. Large, the treasurer, and although there is also note of a demonstration of pathologic slides by Dr. William C. Finoff for Dr. Jackson's committee of graduate education, it was a year before the council could bring about the instructional lectures. At the end of the session of 1920 Dr. Greenwood was able to report that Dr. Peter and probably Dr. George E. de Schweinitz would undertake them during the closing days of the Philadelphia session the next year. The necessity of recuperating from the severity of his foreign service prevented Dr. Greenwood from accepting the chairmanship of the committee appointed to organize these courses. The arrangements were therefore turned over to a committee headed by Dr. Harry S. Gradle, who had also advocated the plan. The success with which they developed this venture is a matter of record. It has served as a model for the multitude of short courses in use by other societies and by other general and special groups. Those who underwent the sketchy teaching before the advent of the board are rather dazzled by the present fellowships in ophthalmology lasting from three to five years. Instructional sessions with 100 or 200 communicants contrast with the days when the best training that could be hoped for was to be exposed to ophthalmology as an intern. The vaccination usually took, in spite of the lack of formal teaching, but if it did not that was no one's concern. The haphazard teaching of the time was characterized in 1914 by Dr. Frank C. Todd. He was the first secretary of the examining board and the second member to be lost. He had been head of the department of ophthalmology at the University of Minnesota Medical School, where one of the very early courses leading to a degree in ophthalmology was conducted. His death

from pneumonia followed a distinguished army service. Thereupon Dr. William H. Wilder, for so many years the guiding spirit of the board, succeeded to the secretaryship. "We have only short courses," Todd had said, "and one desiring to take up practice has no standard set for him." Now this exactly describes the plight today of the men who are unable to obtain or take time for formal consecutive instruction. These men are not always indifferent. We have not at present enough

Fig. 1.—Location of hospitals approved for internships by the American Medical Association in 1938.

opportunities for them. Look at the list of hospitals approved by the American Medical Association for teaching interns in ophthalmology and otolaryngology. Not only are they both "few and far between," but they are so placed as to be totally inaccessible to many who need them most. The same things are hardly less true of competent graduate courses.

Is it then surprising that students try to make brush-up courses do the work of sound study? Much of the criticism of these short courses, and there is no little adverse comment, seems to arise from such attempts to make them take the place of solid training on the part of men who have no other resource. One purpose of these courses should be to stimulate the physician to continue his studies at home. So that if we could provide satisfactory facilities for home study it should help this situation. These men represent the immovable mountain to which we have to bring the prophet. Two possibilities have been discussed by members of the examining board. One is to make wider use of the "long, short course." This kind of instruction is now well established. All that it needs is broader distribution. Sometimes designated as "progressive courses," they consist of a series of demonstrations taking from three or four days to a fortnight. They are patterned after the outstanding one in ophthalmic pathology conducted annually by the American Academy of Ophthalmology and Otolaryngology. At various other instructional sessions, different subjects have been handled in the same way with equal success. Courses in orthoptics and in practical surgery are regularly oversubscribed. Such is the demand that it looks as though this method would ultimately expand to include the remaining subjects and, if given reasonable encouragement, rapidly bring them to the less favored localities.

FORMIDABLE MEDICAL TEXTBOOKS

The other suggestion is much more complicated. That is to introduce the extension course in the accepted sense. For example, can home study courses like those in ophthalmology arranged by Dr. Gradle to be offered through the American Academy of Ophthalmology and Otolaryngology for use of residents be adapted to men who have failed to obtain hospital appointments? Certainly they need them most. Two complications conspire to make this project formidable. The first is the nature of our literature. Most of our textbooks are not suited for home study. It is not that they are too profound but that the arrangement is rather that of works of reference than that of manuals for practice. One fault was discussed twenty years ago by Dr. Clarence Loeb of this city. He complained that you have to know what a disease is before you can look it up. He objected to the grouping according to the part of the eye involved. "There is no clinical or pathological resemblance," he said, "between iritis, sarcoma of the iris, and coloboma of the iris. In practice, iritis would be much more liable to confusion with glaucoma." He advocated teaching the method which he said clinicians use in actual diagnosis. That is to compare all conditions having the same appareance. Taking as an example circumcorneal injection, one symptom of acute iritis, he tries to name the disorders in which it occurs. First he lists the ones that spring at once to mind; then those, three times as many, that can be recollected after deliberation.

Without following this theory too literally could we devise a compromise. Suppose the Kurzes Handbuch of seven volumes could be crossed with one of the popular self-playing bridge systems. At least we might expect something more practical than books that describe every possible procedure without recommending any choice to the bewildered student. Conventional textbooks are perplexing enough to residents in a hospital who can take their difficulties to some member of the staff. To a man miles from the nearest consultant and still farther from a medical library they may be almost useless. This situation is not peculiar to ophthalmology or even to medicine. How many books genuinely adapted to home study are to be found in business administration or in social service? In many instances,

Causes of Circumcorneal Injection

Disorders suggested immediately by circumcorneal injection:	Descemetitis
	Staphyloma cornea
Iritis	Episcleritis
Iridocyclitis	Scleritis
Interstitial keratitis	Staphyloma sclera
Corneal ulcer	Burn cornea
Glaucoma	Abrasion cornea
Phlyctenular keratitis	Wound cornea
	Wound sclera
Other conditions for differential diagnosis:	Rupture sclera
	Tumor iris
	Iridodialysis
Foreign body cornea	Trauma coloboma iris
Superficial punctate keratitis	Traumatic aniridia
Keratitis profunda	Panophthalmitis
	Sympathomatic ophthalmia
	Traumatic cataract

lay institutions experienced in extension courses have compiled an entirely new literature to replace or elucidate the regular textbooks of the intramural courses.

To write for teaching by mail requires special gifts. The style would have to approximate the best of our instructional courses. To rewrite our literature for self instruction would take time. Under present conditions it is a wise decision of the sponsors of the home study courses to see first how they work for residents. Yet, in any case, practical manuals like the little one compiled for the army by Dr. Greenwood would be a boon to students. The large sale of stenotyped reports intro-

duced by Dr. W. T. Davis at the George Washington University courses is indicative of the demand for instruction of this character.

ACHIEVEMENT TESTS

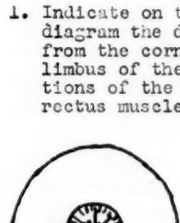
The other difficulty is the matter of examinations. These are a vital part of extension teaching. Even in examinations by the American Board of Ophthalmology, the function of revealing to the student his weak points and helping him to remedy them has turned out to be of no less importance than the primary one of identifying the competent ophthalmologists. Lack of tests is one of the weaknesses of all short courses. So, both for home study and for the "progressive" demonstrations, examinations are essential. Yet to test a student's knowledge in a field of this magnitude by conventional examination questions is a superhuman task. It means having the examiner read entire essays on such minutiae as provocative tests for glaucoma or the use of cross cylinders. Multiply this by the number of men to be reached and the product sounds like federal spending.

For large scale examining, some such method is needed as that used by laymen in the so-called achievement tests. This has been copied by several of the other specialty boards and was used by the American Board of Ophthalmology this year in resuming the written examination.

It is to ask questions that can be answered by choosing the correct statements from several, some of which are false; or questions that can be answered by one word, as yes or no; or by some qualification like the name of a color or by a numeral, like a measurement; or by a diagram. Most of these can be rated by clerks without special training.

As with the textbooks, the labor of preparing examinations of this sort would not be wasted even if the "correspondence courses" should be disappointing.

1. Indicate on this diagram the distance from the corneal limbus of the insertions of the four rectus muscles:



2. Transpose:
-2.00 +3.75 x 20
- .50 + .75 x160

3. The following structures are derived from the ectoderm (ENCIRCLE CORRECT STATEMENTS):

Ganglion cells, Choroidea, Short ciliary nerves, Lamina cribrosa, Corneal epithelium, Descemet's membrane, Central retinal artery, Pigment layers iris, Inclusion bodies, External rectus muscle.

Fig. 2.—Tests for rapid rating.

There is already a demand for old examination questions of the board from candidates wishing to use them for review.

SELF-TEACHING TEXTBOOKS

Another solvent which suggests itself has the double virtue of combining in one volume the manual and the examination. It is the familiar self-teaching textbook. In other fields such books are provided with review questions for which correct answers are furnished. They differ widely in arrangement. The general principle, however, has a recognized place in home study.

SUMMARY

In short, largely by the influence of the American Board of Ophthalmology, training methods for ophthalmologists have been raised to a high degree of excellence. The number of opportunities is, however, totally inadequate. Poorest provision is made for the general practitioners who for whatever reason find themselves in ophthalmologic practice without adequate formal training. For these "forgotten men" four expedients have been discussed by those interested:

1. Extend the "long short courses" to include the remaining branches; equip them with appropriate facilities such as moving pictures and clinics; distribute them in the less favored areas.

2. Devise a literature for self teaching, suited to home study either with or without courses like those now being arranged for residents.

3. Provide suitable tests for checking progress made by students of both these methods, adapted like the familiar achievement tests for self-correcting or rating by clerks.

4. Combine these in manuals patterned after the familiar self-teaching textbooks equipped with review questions and furnished with correct answers.

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ALLERGY OF THE UPPER RESPIRATORY TRACT IN INFANCY AND CHILDHOOD

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LOS ANGELES

In 1925 at the seventy-sixth annual session of the American Medical Association and before the Section on Laryngology, Otology and Rhinology we had occasion to present a paper entitled "Allergy: A Nonsurgical Disease of the Nose and Throat."[1] Now, fourteen years later, we find ourselves impelled to discuss the same topic. Obviously, in the long interval since, we have not been favorably impressed with the reaction to our previous effort; we still feel it necessary to reiterate that allergy is a nonsurgical disease of the nose and throat. Specifically, we still see too many children who have been treated for repeated "colds," chronic sinusitis, chronic bronchitis and recurrent pneumonia, by "cold shots," sinus drainage and adenotonsillectomy until a frank, unmistakable attack of bronchial asthma brings a surprised awakening to the fact that the essential cause of the "colds," sinusitis, bronchitis and pneumonia is allergy. From continued experiences of this sort we are forced to conclude that there has been no marked change in the traditional belief that infection is the chief if not the only cause of all the disturbances we have enumerated and surgical treatment the chief if not the only method of therapy. We are further confirmed in this conclusion by the persistent high incidence of tonsillectomy for the relief of these disturbances, for tonsillectomy in the light of present knowledge can be justified only on the basis of a belief in the infectious nature of the process which the removal of tonsils will relieve.

In 1925 a survey of 840 allergic persons, mainly children, showed that the tonsils had been removed in 340, or 40 per cent. In 1938 a similar survey of 2,230

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Read before the joint meeting of the Section on Laryngology, Otology and Rhinology and the Section on Pediatrics at the Ninetieth Annual Session of the American Medical Association, St. Louis, May 19, 1939.

1. Piness, George, and Miller, Hyman: Allergy: A Nonsurgical Disease of the Nose and Throat, J. A. M. A. **85**: 339 (Aug. 1) 1925.

allergic children showed that in 751, or 33 per cent, the tonsils had been removed. Allowing for the difference in the age groups surveyed, the passing of fourteen years has not changed the incidence of tonsillectomy. In the accompanying table is presented confirmation of this incidence by other writers. In four groups of allergic patients examined respectively by Cunningham,[2] Hansel,[3] Clarke and Rogers [4] and Waldbott, Ascher and Giese,[5] totaling 2,186 patients, the average incidence was 38 per cent. This ratio does not differ from that found in the population at large, for the statistical studies of Cunningham [2] on 7,958 college women between the ages of 15 and 19 showed that the tonsils had been removed in 2,756, or 34.6 per cent. Since the incidence is the same for the allergic group and for the general population, we are inclined to believe that the same motive inspired the removal of tonsils in the two groups, that is, to remove a source of infection. Apparently, then, it is still a common belief that the signs and symptoms of allergy are due to infection or, as an alternative, that it is still common to mistake the signs and symptoms of allergy for those of infection.

Turning first to further proof of the statement that it is still a common belief that the signs and symptoms of allergy are due to infection and using tonsillectomy as a gage of the prevalence of this belief, we asked the parents of 273 children suffering from obvious bronchial asthma whether tonsillectomy had been advised for the relief of asthmatic symptoms. Of these 119, or 43 per cent, answered that tonsillectomy had been advised definitely for the relief of asthma. Even if we should depart from our position that the only logical and justifiable basis for recommending tonsillectomy is the belief that a source of infection is being removed and thereby acquit all who recommend tonsillectomy for the relief of asthma of the belief that allergic symptoms are due to infection, we are still faced with the difficult question why tonsillectomy is so often recommended for the alleviation of asthma.

An obvious answer to this question would be that tonsillectomy so frequently alleviates asthma that the procedure is still justified by experience. Of this we have found no proof. On the contrary, the 751 children who came to the allergy clinic after tonsillectomy are evidence of the fact that the procedure frequently fails to give relief. Moreover, of 685 allergic children from whom the information was available 116, or 17 per cent, exhibited their first frank allergic symptoms after tonsillectomy and many others complained that mild symptoms had been aggravated. The failure of tonsillectomy to influence favorably the course of allergy is confirmed by Bullen,[6] who found that in 1,000 children whose tonsils had been removed ten years previously the incidence of allergic symptoms was 4.1 per cent and that in a comparable group whose tonsils had not been removed the incidence was 3.6 per cent, or 0.5 per cent less, on which he commented "Patients who are promised relief or protection from atopy by tonsillectomy are most certainly destined to be disappointed." Cunningham,[2] examining 12,530 women at the University of California, found that in those whose tonsils had been removed the incidence of asthma was 5.60 per cent and of hay fever 23.54 per cent, while in those whose tonsils had not been removed the incidence of asthma was 5.03 per cent and of hay fever 26.43 per cent. Experience therefore does not justify the removal of tonsils for the relief of allergic symptoms, whether or not the belief is held that allergic symptoms are due to infection.

One returns then to proof of the alternative, that tonsillectomy is so often recommended for the relief of the symptoms of allergy because it is still common to mistake them for the symptoms of infection. This may be the result of failure to recognize and distinguish between the atypical symptoms of uncomplicated allergy, the symptoms of allergy complicated by infection and the symptoms of infection alone and of failure to recognize and distinguish between the pathology of pure allergy, the pathology of allergy obscured by infection and the pathology of infection.

Allergy of the respiratory tract may go undiagnosed because the characteristic symptoms of hay fever or asthma are not present. Yet allergy alone may produce chronic nasal obstruction without sneezing and having little to do with enlarged adenoids and may produce frequent bouts of rhinorrhea and nasal obstruction having little to do with infection although frequently dubbed "frequent colds" or sinusitis. Allergy alone may produce persistent sore throat unrelated to tonsillitis and "stuffy" ears unrelated to pharyngitis. Allergy alone may produce a chronic or intermittent cough without infection of the bronchi and without wheezing or dyspnea and may produce recurrent allergic bronchopneumonia with fever, leukocytosis and tachypnea without wheezing and without pneumococci.[7] In other words allergy may simulate many of the symptoms and signs of acute or chronic infection of the respiratory tract.

Incidence of Tonsillectomy in Various Groups of Allergic Patients

Author	Number of Allergic Patients Examined	Patients with Tonsils Removed	Percentage of Patients with Tonsils Removed
1. Piness and Miller (1925)[1]	834	340	40
2. Piness and Miller (1938)	2,230	751	33
3. Cunningham [2]	589	290	40
4. Hansel [3]	323	100	30
5. Clarke and Rogers [4]	162	73	45
6. Waldbott and his co-workers [5]	1,112	433	38
Totals	2,186	898	Average 38

There is less reason for failing to recognize allergic pathologic changes in the nose and throat than there is for failing to recognize allergic symptoms. "Cloudy" sinuses, as Proetz [8] has shown, may be due to allergic swelling or polypoid degeneration of the mucous membrane. Polypoid degeneration, according to Kern and Schenck,[9] is almost invariably due to allergy. The largest of chronically enlarged tonsils are also due to allergy, and a regrowth of lymphoid tissue in the tonsillar fossae after tonsillectomy is as characteristic of allergy as the original enlarged tonsils, whose size alone so often seems to be the only indication which led

2. Cunningham, R. L.: Normal, Absent and Pathologic Tonsils in Young Women, Arch. Int. Med. **47**: 513 (April) 1931.
3. Hansel, F. K.: Allergy of the Nose and Paranasal Sinuses, St. Louis, C. V. Mosby Company, 1936, p. 423.
4. Clarke, J. A., Jr., and Rogers, H. L.: A Statistical Study of Allergic (Vosomotor) Rhinitis, Arch. Otolaryng. **25**: 124 (Feb.) 1937.
5. Waldbott, G. L.; Ascher, M. S., and Giese, F. W.: Results of Tonsillectomy in Allergic Patients, J. Michigan M. Soc. **35**: 369 (June) 1936.
6. Bullen, S. S.: The Effect of Tonsillectomy in Allergic Conditions, J. Allergy **2**: 310 (July) 1931.
7. Miller, Hyman; Piness, George; Feingold, B. F., and Friedman, T. B.: Allergic Bronchopneumonia, J. Pediat. **7**: 768 (Dec.) 1935.
8. Proetz, A. W.: Sudden Allergic Reactions Localized in the Antrum, Tr. Am. Laryng., Rhin. & Otol. Soc. **39**: 87 (March) 1930.
9. Kern, R. A., and Schenck, H. P.: Allergy, a Constant Factor in the Etiology of So-Called Mucous Polyps, J. Allergy **4**: 485 (Sept.) 1933.

to their removal. Lymphoid hyperplasia is one of the distinctive features of allergy. In ninety-five allergic children examined the otolaryngologist noted enlarged tonsils in seventy-nine, or 83 per cent. On reexamining 544 allergic children in whom the tonsils had been removed, he found an excessive regrowth of lymphoid tissue in the tonsillar fossae in seventy-one, or 13 per cent, at times within two months after removal of the tonsils. In six this regrowth had provided sufficient tissue for a second tonsillectomy, a story which in itself is often a valuable hint that the patient is allergic.

The pathologic changes of allergy may, by interfering with drainage, permit the implantation of a secondary chronic infection in the upper respiratory tract. "Secondary" is used advisedly, for when allergy and infection coexist in the upper respiratory tract allergy usually precedes infection. The allergic process often goes unrecognized because it may be modified or masked by the superimposed infection, just as allergic eczema may be modified or masked by a superimposed infection. This was clearly demonstrated by Semenov [10] in his histopathologic analysis of the mucous membranes of the nose and sinuses of 500 patients with nasal sinusitis. His data show that 17 per cent of the patients examined had "manifest" allergy and 35.4 per cent "equivocal" allergy, that is allergy probably modified by infection. There was a total probable incidence of 52.4 per cent of allergic mucous membranes in the 500 examined.

In 1912 Todd [11] wrote:

> During each attack of hay fever, swelling of the turbinates takes place causing defective drainage, secretion occurs, infection is added thereto and we have present ethmoiditis and sometimes pansinusitis. Repeated attacks may result in a persistent lesion and thus the patient may develop chronic ethmoiditis, sphenoiditis, frontal sinusitis or pansinusitis often accompanied by persistent swelling of the turbinates and especially of the middle turbinate.

This we quoted in 1925 and this in essence is still the sequence of events which we conceive to be essentially true. Basing our opinion on this conception we feel that, once infection has taken place, treatment directed solely at the underlying allergy or solely at the accompanying infection will not accomplish its purpose. Treatment of underlying allergy is often necessary to establish drainage even after extensive surgical removal of tissue, for such increased space as surgical intervention provides may be rapidly filled by the continued swelling of the allergic mucous membrane. Although treatment of the allergic process may aid the healing of accompanying infection, treatment of the infection alone can never clear up the underlying allergy.

It is evident then that the identification of allergy of the upper respiratory tract is the first essential in its proper treatment and in the prophylaxis against the complications of both allergy and infection. There is no way to estimate the ability to identify allergy of the respiratory tract in childhood by the practitioners at whose doors the responsibility lies. From what has gone before, however, there can be but little justification for recommending tonsillectomy in the presence of allergy. Thus the extent to which tonsillectomy is recommended measures either the degree to which the allergic nature of the process goes unrecognized or, if recognized, the degree to which practitioners are ridden by the tonsillectomy complex. It is therefore pertinent to determine if possible the degree of responsibility for recommending tonsillectomy in the presence of allergy in the groups of practitioners chiefly involved, namely the general practitioners, the pediatricians and the otolaryngologists. Eighty-four patients were asked who had advised them to have their tonsils removed for the relief of allergic symptoms. It was found that nineteen, or 22 per cent, were so advised by a general practitioner, twenty-seven, or 32 per cent by a pediatrician and thirty-eight, or 45 per cent, by an otolaryngologist. The conclusion is obvious that the responsibility for advising tonsillectomy for the relief of allergic symptoms may justly be distributed in like proportions.

Although our thesis is that allergy is a nonsurgical disease and that therefore tonsillectomy should not so frequently be resorted to for the relief of its symptoms, we must not lose sight of the possibility that allergy is involved only incidentally in what may be termed the "tonsillectomy epidemic." Despite the statement of Cunningham [2] that "there is a growing tendency to question the value of tonsillectomy as a prophylaxis against infectious diseases and as a preventive measure or cure for such systemic diseases as rheumatism, chorea and carditis," of McLean [12] that there is no significant diminution in the number of colds after tonsillectomy, of Kaiser [13] that bronchitis is twice as common after tonsillectomy, of Dean [14] that he finds it impossible to say that any tonsil is the seat of chronic infection except after removal and microscopic study and of Cemack [15] that "simple hypertrophy is not an indication for tonsillectomy," there are, according to a recent survey of Collins,[16] 1,235,000 tonsillectomies a year in the United States in the age group under 15 years. This can be explained only in the words of Glover,[17] commenting on the 200,000 annual tonsillectomies performed in England:

> It is a little difficult to believe that among the mass of tonsillectomies performed today all subjects for operation are selected with true discrimination and one cannot avoid the conclusion that there is a tendency for the operation to be performed as a routine prophylactic ritual for no particular reason and with no particular result.

To this Layton,[18] another English physician, somewhat less dispassionately added "Enlarged tonsils should be removed from the terminology not the pharynx." In the United States Cunningham,[2] Dean,[14] Forsythe [19] and Kaiser [13] lend assent. It may well be then that allergy has only incidentally been caught in the wave of tonsillectomies, so that the persistence of this procedure in the treatment of allergic symptoms is not entirely due to the fact that allergy is unrecognized or ascribed to an infection cause. Yet, since tonsillectomy undoubtedly arose from the concept of removing a focus of infection, it is not amiss to state dogmatically that the pathologic disturbances of the anatomy and physiology of the respiratory tract by

10. Semenov, Herman: The Surgical Pathology of Nasal Sinusitis, J. A. M. A. **111**: 2189 (Dec. 10) 1938.
11. Todd, F. C.: Ethmoiditis, as a Common Sequel (Never the Cause) of Pollinosis (Hay Fever), J. A. M. A. **59**: 1090 (Sept. 21) 1912.
12. McLean, C. C.: The Incidence of Respiratory Infection During the First Five Years of Life, Arch. Pediat. **49**: 279 (May) 1932.
13. Kaiser, A. D.: The Relation of Tonsils and Adenoids to Infection in Children: Based on a Control Study of Forty-Four Hundred Children Over a Ten Year Period, Am. J. Dis. Child. **41**: 568 (March) 1931.
14. Dean, L. W.: The Tonsils, Their Function and Indications for Their Removal, J. A. M. A. **103**: 1044 (Oct. 6) 1934.
15. Cemack, A. I.: Indications for Tonsillectomy in Childhood, Monatschr. f. Ohrenh. **66**: 1453, 1932.
16. Collins, S. D.: Frequency of Surgical Procedures Among 9,000 Families: Based on Nationwide Periodic Canvasses 1928-1931, Pub. Health Rep. **53**: 587 (April 22) 1938.
17. Glover, J. A.: The Incidence of Tonsillectomy in School Children, Proc. Roy. Soc. Med. **31**: 1219 (Aug.) 1938.
18. Layton, T. B.: What Can We Do to Diminish the Number of Tonsil Operations? Lancet **1**: 117 (Jan. 20) 1934.
19. Forsythe, W. E.: The Health Record of University Students as Related to Tonsillectomy, Pub. Health Rep. **43**: 560 (March 9) 1928.

allergy are mediated by a recognizably different process than those of infection. The importance of recognizing the allergic process is threefold: 1. A correct diagnosis increases the probability of giving relief and decreases the probability of misdirected treatment. 2. It prevents development of more serious allergic disturbances. 3. It prevents secondary infection with the probability that such infection will be difficult to control because the accompanying allergy is not recognized. Inherent in the early recognition of allergic symptoms is the promise that the allergic child will then be protected from the characteristic physical disabilities and handicaps which result in mental, social and economic maladjustment. In conclusion, may we say that we decry the evidence which leads us to believe that there has been an unjustifiable lag in the application of our knowledge of allergy and that fourteen years from today we hope we shall not again feel impelled to call attention to the responsibility of the general practitioner, the pediatrician and the otolaryngologist in applying this knowledge.

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ABSTRACT OF DISCUSSION

DR. FRANCIS M. POTTENGER JR., Monrovia, Calif.: This paper is timely and, although approached from an entirely different angle, augments the statements that were made by Drs. Reimann and Havens in the General Scientific Meetings. The type of child that we see as the allergic child is told that his cold, his continuous anorexia and all his allergic manifestations are frequently due to the foci of infection in his tonsils, but the fact that this child may have anorexia, frequent colds, bronchitis and asthma due to fundamental physiologic instability has not been widely recognized. Dr. Wingate Todd made a wide study of the so-called allergic cripple and in that study he showed that anatomic deviations from the normal are responsible for much of this child's difficulties. He concluded that the hypertrophy of the tonsil is inversely proportional to the mineralization of the body and that it is not due to an infectious process in the majority of cases. In our work my associates and I have not been interested in the allergic paroxysm itself. We have been interested in studying the child as a whole, and here we find the same as has been shown by Todd, that there are marked deviations in general physiology from the normal standards. It has been our attempt to approach this child not from the standpoint of his allergy but from his physiologic deviations; and we have found that, as the body mineralization improves and his physiologic reactions become more stable, the respiratory infection and other symptoms which appeared in the form of allergy disappear and the tonsils subside behind the tonsillar pillars.

The First Object of Research.—Harvey has been called the "Father of Physiology," but Harvey was a physician. The fact that there were no pure physiologists in those days, and that Harvey might be regarded as representing physiology in his time, is irrelevant to the point that is being made. I am using this great physician's work as an illustration of how contact with patients inspires and leads to research on the normal functions of the body; it is a perfect illustration of how clinical medicine can react upon related science: in this instance actually beginning to form a science. Whatever else Harvey did he undoubtedly discovered the systemic circulation; and it is very apt here to point out that this discovery in particular, and the more complete statement of the circulation into which he wove it, was based in very large part upon experiments carried out upon the human being, the first object of research to which a physician naturally turns.—Lewis, Sir Thomas: Research in Medicine and Other Addresses, London, H. K. Lewis & Co., Ltd., 1939.

SPONTANEOUS PNEUMOTHORAX IN COLLEGE STUDENTS

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Pneumothorax is commonly considered to be due to tuberculosis of the lung until proved otherwise. It has been said that in hospital and sanatorium practice 80 per cent or more of the cases of pneumothorax are of tuberculous origin, but in many such institutions patients are admitted primarily because of tuberculosis and the pneumothorax is generally only incidental. Pneumothorax may rarely occur in the early stages of clinical tuberculosis, but ordinarily when present in this disease it is a late complication. In late years it is being recognized that pneumothorax occurs in apparently healthy persons, and the opinion is gaining ground from such instances that the condition is often entirely unrelated to clinical tuberculosis. Many names have been applied to this type of pneumothorax, such as "pneumothorax in the apparently healthy," "benign spontaneous pneumothorax" and "pneumothorax simplex." Perhaps the best name suggested is "idiopathic spontaneous pneumothorax." This condition not only occurs in the apparently healthy but is usually characterized by an afebrile benign course with recovery in a few weeks.

The most exhaustive study of the cause of pneumothorax in the apparently healthy was made by Kjaergaard [1] in 1932. He reviewed the literature and found six cases in which the lesion had been "elucidated anatomically at autopsy." In these six cases the cause of the pneumothorax was rupture of the superficial air vesicles at the apexes of otherwise healthy lungs. Three of these vesicles resulted from multiple congenital malformations of the lung (or lung cysts). In the other three, solitary air vesicles had formed on a base of cicatricial changes. Microscopic examination had demonstrated that the base of these vesicles included a valve like structure as a result of scar tissue. The valve had allowed gradual distention of the vesicles until finally rupture had occurred. Kjaergaard further described his own study of three superficial lung vesicles without pneumothorax discovered in routine autopsies. The vesicles in two of these cases occurred on a scar tissue basis. He originally thought that the vesicles in the third instance resulted from a valve mechanism due to local emphysematous change, but in a subsequent communication [2] he made a note to the effect that he had changed his mind about this case and he attributed this vesicle to a congenital malformation of the lung. In this second publication in 1933 he reported in detail two additional cases of his own in which pneumothorax occurred in elderly persons without symptoms from rupture of congenital lung cysts. Perry [3] concludes his discussion of the etiology with: "The immediate cause of a spontaneous pneumothorax is probably always rupture of an air-containing vesicle into the pleural cavity. They are said to be due either to congenital defect, to fibrous valvular obliteration of the smaller

From the Department of Internal Medicine, University of Virginia Department of Medicine.

Read before the Middle Atlantic Section of the American Student Health Association, April 8, 1939.

1. Kjaergaard, H.: Spontaneous Pneumothorax in the Apparently Healthy, Acta. med. Scandinav., supp. 43, pp. 1-159, 1-93, 1932.
2. Kjaergaard, H.: Pneumothorax Simplex: Two Cases with Autopsy Findings, Acta. med. Scandinav. **80**: 93-104, 1933.
3. Perry, K. M. A.: On Spontaneous Pneumothorax, Quart. J. Med. **23**: 1-22 (Jan.) 1939.

bronchi or to localized emphysema. There does not seem sufficient evidence to decide at present which of these is the most important cause."

The true incidence of idiopathic spontaneous pneumothorax is difficult to determine because it is well recognized that the condition occurs with little or no symptoms. The so-called silent pneumothorax is probably not infrequent. Wilson [4] has reported finding five cases without symptoms in routine chest roentgenograms of Yale students during a four year period. He mentions that others have had similar experience. As previously noted, incidental silent pneumothorax has been reported at autopsy.[1] Further, it seems likely that many cases of mild or atypical symptoms of pneumothorax have been diagnosed pleurisy, intercostal neuralgia, muscle strain or something else. In spite of an interest in the condition, I know of three instances in which I failed on initial visits to recognize the presence of pneumothorax. If every case presenting chest pain or dyspnea could be studied with x-rays, no doubt many more cases of spontaneous pneumothorax would be identified. Pneumothorax without symptoms or with slight and atypical symptoms is probably a fairly common condition.

As for the incidence of idiopathic spontaneous pneumothorax with symptoms, there appears to be a difference of opinion. Kjaergaard found fifty-one cases in the hospitals of Denmark in a careful search over a twenty year period and concluded that the condition was "very rare," although he added that it had been observed more frequently in the five years preceding his publication. Perry, reporting eighty-five cases found over a fourteen year period at the London Hospital, remarks that it is a "comparatively rare disease." He found twenty-six cases in the first seven years of this study and fifty-nine in the second seven years. On the other hand, Wilson states that "spontaneous pneumothorax has come to be recognized as a fairly common clinical entity." There are at least three large series [5] in the American literature, containing nineteen, twenty-six and seventy-one cases respectively that have come under observation of one group or one individual. Kjaergaard, Perry, Wilson and others agree that young males are particularly susceptible to the condition, which fact was previously emphasized by the French name "pneumothorax of the conscripts." Wilson says "the increasing study of large groups of young individuals in schools, colleges, camps and industry has revealed many cases." He mentions that he recognized six cases from symptoms in Yale students in four years.

The problems of pneumothorax in college students is largely one of "pneumothorax in the apparently healthy," since college students are presumably "apparently healthy." With the exception of the cases already cited from Wilson's paper, it seems that little attention has been focused on this aspect of the health of college students.

In the present study fifteen cases of pneumothorax proved by roentgenograms have been recognized from symptoms in an average male student body of 2,500 at the University of Virginia. That this condition is not infrequent in college students is attested by the fact that eleven of these cases have occurred in the past five years, or approximately one case per thousand students in a session. My purpose in this presentation is to discuss idiopathic spontaneous pneumothorax and to report our experience in these fifteen symptomatic cases encountered in the student body of the University of Virginia. In this discussion the excellent articles by Kjaergaard, Wilson and Perry are freely used, and those interested may refer to these reviews for a full bibliography.

Exertion per se is not a necessary precipitating factor. Laughing, coughing, sneezing, straining at stool, coitus and running have all been reported as the immediate cause, but many cases occur while the patient is resting in bed or in a chair. A third of Perry's patients were seized with pain in the early morning. In my experience also the onset has often been in the early morning: once while getting out of bed, once while dressing, once while shaving and several times while going to breakfast or early class. However, in at least three instances the first symptom was noted while the patient was relatively quiet (sleeping, studying and waiting for a bus).

When symptoms occur, their onset is usually very abrupt. Pain is almost invariably present and is generally the first symptom. It may be so agonizing as to require morphine, or it may be so mild that it is described as "oppression" or a "heavy feeling." It may be located from the shoulder to the upper part of the abdomen and it is usually located on the side involved; but rarely, as in one of our cases, it may be on both sides in a unilateral lesion. Once I found all the pain located substernally. Although the pain persists between respirations, it is ordinarily exaggerated by a deep inspiration. The intensity of the pain may increase for several hours before it gradually begins to subside. In several of our patients it persisted in a milder form for several days, and in a few instances it was an exaggeration of discomfort several days after onset which first made the patient seek medical advice. Pain or discomfort of some variety was present in all our series. A reflex cough, with or without sputum, may be an early symptom, but it was not a major one in our cases. Dyspnea may be absent, mild or marked. It was a complaint in eight of our group. It may occur as an early symptom or it may be noted only on exercise several days later. The rate and degree of the pulmonary collapse are said to determine the kind and amount of dyspnea. Although cyanosis may rarely occur, we have not seen it. The clinical picture of medical shock has been described in some cases. In the early stages it was probably frequent in this series, judging from the descriptions given, but only once was the picture of severe medical shock actually observed. It has been pointed out that cases presenting a febrile course are presumptively not due to idiopathic pneumothorax, and in none of our patients was there a significant or prolonged fever.

The physical signs of pneumothorax (i. e. suppression of tactile fremitus and suppression of voice and breath sounds) are said to be present in all cases. Perhaps they always are present but unless the possibility of pneumothorax is constantly borne in mind it is very easy to fail to detect them in a routine chest examination, especially when the layer of air is thin. Inspiratory lag and hyperresonance become more detectable as the collapse becomes more complete. In complete collapse there may be a shift of the mediastinum and depression of the diaphragm. Amphoric and metallic

4. Wilson, J. L.: Spontaneous Pneumothorax, Internat. Clin. **1**: 157-175 (March) 1937.

5. Leggett, E. A.; Myers, J. A., and Levine, I.: Spontaneous Pneumothorax: Report of Thirty-One Cases, Am. Rev. Tuberc. **29**: 348-361 (March) 1934. Morriss, W. H.: Idiopathic Pneumothorax, Tr. Am. Climat. & Clin. A. **50**: 224-231, 1934. Wood, H. G., quoted by Perry.[3]

auscultatory phenomena are not commonly found in spontaneous pneumothorax. The signs of fluid in the pleura are found only in the rare cases of hemopneumothorax. Careful chest films furnish the most exact method of diagnosis, and fluoroscopic examination alone is not reliable. In one of our cases, fluoroscopy failed to reveal the collapse subsequently demonstrated in films. Roentgenograms determine the degree of collapse and allow one to follow the course of reexpansion. Kjaergaard [1] classifies the degree of collapse under five headings:

1. Partial pneumothorax.
2. "Coat-formed" pneumothorax.
3. Total pneumothorax without displacement.
4. Total pneumothorax with moderate displacement.
5. Tension pneumothorax.

Our cases of pneumothorax by this classification were grouped as follows: partial five, "coat-formed" six, total without displacement three, total with moderate displacement one, and tension none.

Routine laboratory examinations are usually negative. Examination of the sputum for acid fast organisms is important. No acid fast organisms were found in our group. The most important procedure is the tuberculin test. In the limited reports available there appears to be little if any increase in the percentage of positive tuberculin reactions over that in normal groups. A positive reaction does not mean clinical tuberculosis but a negative one virtually excludes this etiology. Unfortunately this important test was performed only once in our series and in this instance it was negative.

In college students the chief problem in differential diagnosis is to exclude clinical tuberculosis. The lack of a history suggesting tuberculosis makes it unlikely. The tuberculin test, if negative, is most helpful. Careful study of the roentgenograms while the collapse is still present is not always dependable but, after reexpansion, physical and x-ray examinations of the chest may be relied on. No physical or x-ray signs suggestive of tuberculous activity were found in our cases, although several films exhibited calcium deposits and one case gave evidence of calcified miliary tuberculosis which appeared to be definitely healed.

Five main clinical types of pneumothorax have been described:

1. Chronic pneumothorax.
2. Hemopneumothorax.
3. Recurrent pneumothorax.
4. Alternating pneumothorax.
5. Bilateral pneumothorax.

We have not encountered a definite chronic pneumothorax nor have we recognized hemopneumothorax. We have had three cases of recurrent pneumothorax. One of our patients had five episodes of pneumothorax on the same side during his college career but he has had no recurrence in the past thirteen years. Another student had a second pneumothorax after leaving college but has been well for two years. There was still some air in the pleura of the third patient four months after the original episode, which was probably a recurrence, but this may have been a case of "chronic pneumothorax." A fourth case was difficult to classify because the patient suffered collapse of one lung exactly one month after he had had an almost complete collapse of the other, which had not entirely reexpanded. This case should probably be classed as alternating, since no heroic measures were necessary as they would have been in the bilateral type.

Rest in bed is all the treatment usually required in most cases of idiopathic spontaneous pneumothorax. No additional therapy was required in any of our cases. The period of rest depends somewhat on the degree of pneumothorax, but since our experience with the condition has increased the period of bed rest has shortened. Our most recent patient, who had a total pneumothorax without displacement of the mediastinum, was advised to remain in bed at home for three weeks but it was subsequently learned that he stayed in bed for only one week. His lung reexpanded in a total of three weeks and he made an excellent recovery. Kjaergaard [1] recommends a minimum of two weeks' rest in bed but Perry says that rest in bed for one week should be sufficient to allow the perforation to heal even in the more severe attacks. He points out that after healing the condition is unaffected by exertion. Tension pneumothorax requires immediate puncture, which may have to be repeated. Aspiration may be tried in chronic pneumothorax. Kjaergaard [1] says that injections of 30 cc. of 30 per cent dextrose solution may be used as a last resort in chronic, recurrent or alternating pneumothorax. Complete rest with morphine is necessary in hemopneumothorax, and ligation may even be attempted. The mortality is 37 per cent in reported cases. Bilateral puncture with continuous aspiration must be used when there is simultaneous collapse of the two lungs. Half the recorded cases have been fatal.

The prognosis in simple idiopathic spontaneous pneumothorax is excellent. The condition may recur once or several times, but the patient survives. Although tuberculosis may be a common cause of the scar tissue to form the valvelike mechanism necessary to the vesicle formation in pneumothorax, it is extremely rare that clinical tuberculosis develops as a sequel to the pneumothorax of the apparently healthy. Kjaergaard [1] in a careful study found that only one case of clinical tuberculosis had developed in forty-nine subjects in a period of observation covering a minimum of two years. Perry reexamined fifty-five of his eighty-five patients physically and radiologically without finding evidence of subsequent pulmonary tuberculosis, and twelve others were traced and known to be alive and well. He says further that "in a survey of the literature which included about 250 recorded cases of benign pneumothorax, it has been possible to find a record of only six developing chronic pulmonary tuberculosis." He points out that the incidence of tuberculosis in patients who have had a benign spontaneous pneumothorax is no higher than in the general community. Fourteen of our fifteen patients have been followed and are known to be in good health now after periods ranging from eight months to fifteen years. Four of these fourteen patients experienced their pneumothorax more than five years ago.

CONCLUSION

Spontaneous pneumothorax occurs not infrequently in college students. The sudden onset of chest pain or dyspnea should suggest the possibility of this diagnosis, and all patients with such symptoms should have x-ray examinations of the chest. If pneumothorax is found, the patient should be confined to bed for a week from its onset. No after-care is necessary because recurrences cannot be prevented by any known treatment. These patients should not be diagnosed as tuberculous or given treatment for tuberculosis unless some positive evidence of tuberculous activity has been demonstrated.

PREVENTION OF IGNITION OF ANESTHETIC GASES BY STATIC SPARK

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As a result of our investigation of a fatal anesthetic explosion in Boston in October 1938, a means of preventing ignition of anesthetic gases by static spark has been devised which we believe to be of sufficient value to warrant general adoption in climates in which static sparks are frequent.

The explosion in question occurred despite the presence of from 60 to 65 per cent relative humidity in the operating room, electrical connection by chain between the operating table, the gas machine and the floor, and connection between the gas machine and the patient by wire wound around the breathing tubes and embedded in the rubber of the mask and thence by dangle chains to the patient's face. The floor was of terrazo with

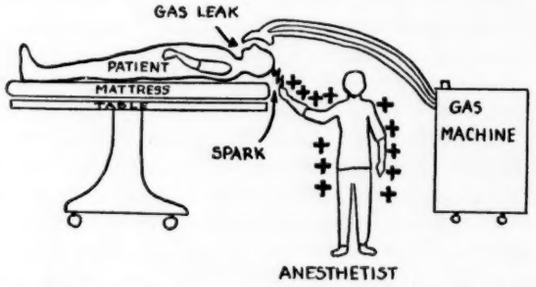

Fig. 1.—Danger from a charged person approaching a gas leak, as in the reported case.

embedded brass grids and was grounded. The anesthetist's stool was of painted metal with rubber feet and was covered with a sponge rubber pad finished with a felt-like cloth and protected by a casing of a textile similar to oilcloth or fabricoid. The mask was held in place by a rubber strap passed behind the patient's head. No electrical apparatus was in use other than the usual floor and ceiling lights. Cyclopropane had been administered by the carbon dioxide absorption method in the closed circuit of a Connell DeLuxe machine for about twenty-five minutes. Oxygen had been running at about 250 cc. a minute, no cyclopropane had been added for the last ten minutes and the bag had been staying about half full. It appeared, therefore, that there was no gross leak. As the wound was about to be sutured, the surgeon left the table and had reached a corner of the room when the explosion occurred. There was no other approach to or departure from the vicinity of the operating table and gas machine.

After the explosion the mask was still strapped to the patient's face, with the cushion ruptured. The posterior pharyngeal wall was lacerated, blood oozed from the trachea, subcutaneous emphysema developed rapidly and the patient died about fifteen hours later. The machine was damaged, the rubber parts being ruptured throughout. Accessible parts of the breathing circuit were found drenched with water, apparently ample to couple electrically the patient and the machine up to the time of the explosion. The inspiratory flutter valve was jammed into its seat and the expiratory valve was blown off the machine, indicating that the explosion started not in the machine itself but in the vicinity of the mask and breathing tubes.

At a later date conditions were set up which duplicated as nearly as possible those existing at the time of the explosion, and various observations were made. Even in the presence of approximately 65 per cent relative humidity, sparks of sufficient intensity to ignite explosive mixtures were obtained. The magnitude of charges which could be developed was measured by an electrostatic voltmeter. The most important finding was that an anesthetist wearing cotton garments acquired a potential of several hundred volts merely by sliding forward on the cushioned stool and then rising. When woolen street clothes were worn, the potential was considerably greater. Other less dangerous sources of potential were observed. A draft of air accompanying the opening of a door raised the potential of the operating table 50 volts. The placing of the

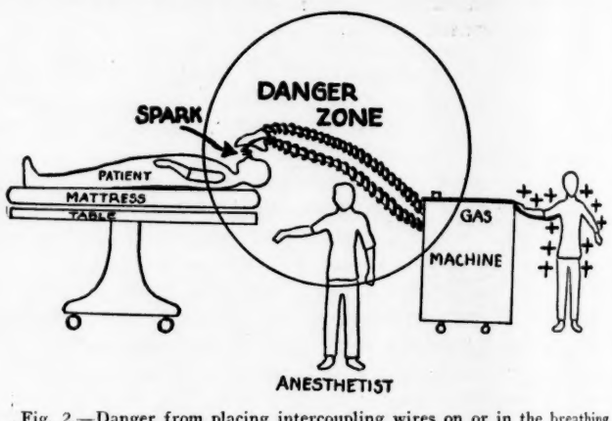

Fig. 2.—Danger from placing intercoupling wires on or in the breathing tubes.

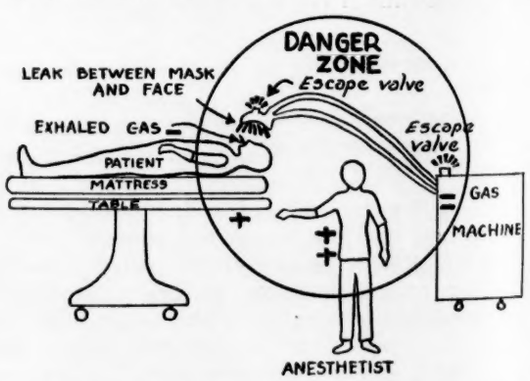

Fig. 3.—Danger from gas leaks in the absence of intercoupling.

drapes gave the patient a potential of 40 volts to ground. The insertion of gauze pads between the sterile sheet and the neck raised the patient's potential 150 volts. The removal of the stand for the instrument tray from the foot of the table gave the patient a potential of 50 volts. The investigation led to the conclusions which follow:

1. Adequate protection against electrostatic sparks is not necessarily obtained by providing a relative humid-

From the Department of Anesthesia, the Lahey Clinic, Boston.
Read before the Section on Miscellaneous Topics, Session on Anesthesia, at the Ninetieth Annual Session of the American Medical Association, St. Louis, May 17, 1939.

ity as high as 60 per cent. It has been suggested that air conditioning equipment of the air washing type, as in this case, may remove carbon dioxide or other electrolyte from the air and thus defeat one of the main objects of humidification. The effects of atmospheric conditions on electrostatic phenomena are being investigated further.

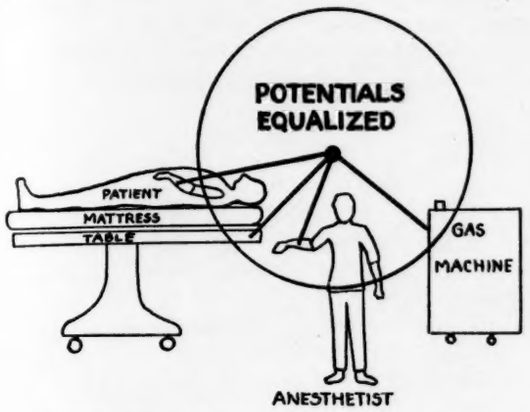

Fig. 4.—Intercoupling of patient, gas machine, anesthetist and table.

2. Cushions on the anesthetist's stool constitute such a serious hazard that they should not be permitted. It is quite possible that the explosion in this case occurred as a result of a spark between the anesthetist and the patient after the anesthetist had slid forward on the stool (fig. 1). In other cases similar unsuspected factors may precipitate explosions if the protective measures which we advise are not used.

3. Intercoupling near the gases, as by wire wound around the breathing tubes and metal contact to the patient's cheek, is believed to present the following

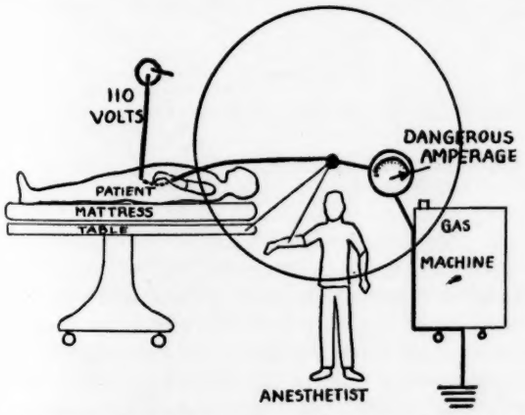

Fig. 5.—Danger to patient through low resistance intercoupling in the presence of defective electrical equipment.

serious hazard: If, when the mask is being removed, the interruption of the connection between the chain and the face should occur simultaneously with some event tending to produce a charge on the patient or on the machine, there might well be a spark discharge between the face and the chain. This spark would of necessity occur directly in the spill of explosive gas from the machine (fig. 2). There is a further hazard due to the possibility of a break in the wire where it is embedded in the rubber. This break may occur in such a way as to introduce a spark gap directly into the explosive mixture. If metallic electrical connection is to be maintained between the patient and the gas machine, the conductor should be placed at a distance from the breathing tubes and mask. It must be so arranged that it need never be disconnected while explosive gases are present, because disconnection of an effective conductor will produce a gap across which a spark could jump.

4. Previous reports as to the hazard involved by wool and silk were confirmed. Woolen blankets and silk and woolen outer garments should never be allowed near explosive gases. Undergarments of either silk or wool do not constitute an electrical hazard. To produce a charge from such fabric it is necessary first to rub it with some other material and then to separate the two. If the two are not separated there can be no electrical potential.

5. It was immediately obvious that the ideal method for completely removing the possibility of an electro-

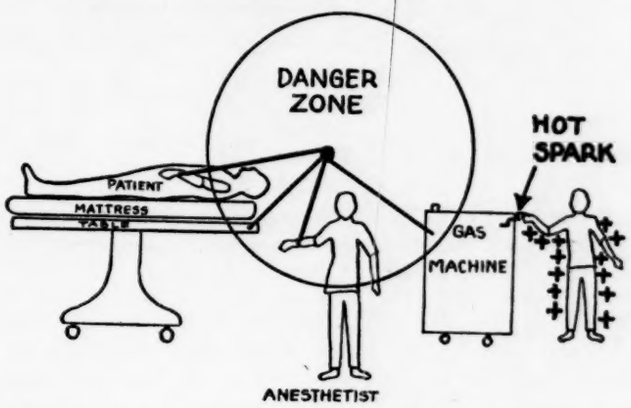

Fig. 6.—Danger of increasing spark energy by low resistance intercoupling.

static potential between any two objects in an operating room, and thereby for preventing any spark discharge which might ignite an explosive mixture, would be to interconnect all objects and persons by conductors between these bodies or from these bodies to a conducting floor, which would then serve as a common interconnector. This method is believed to be impracticable

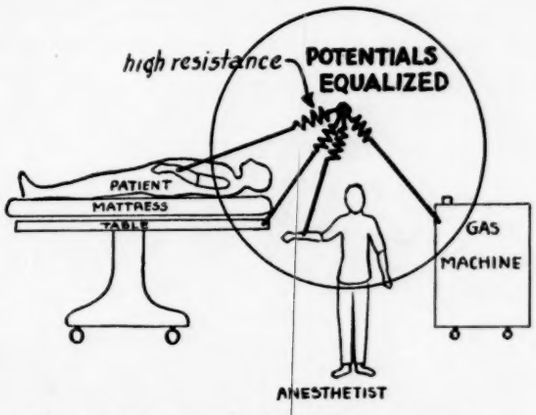

Fig. 7.—Safety through high resistance intercoupling.

with any means that have as yet been made available. However, it is possible by intercoupling to reduce certain specific hazards of frequent occurrence. The method here proposed is based on the assumption that under normal conditions of administering anesthetic gases no mixture of explosive concentration is likely to exist in an operating room outside a region of about a foot in radius surrounding any gas leak. Consequently considerable reduction in risk is obtained if the

occurrence of sparks within such restricted danger zones is prevented. The places where gas leaks most commonly occur are at the escape valve and between the mask and the patient's face. Gas also escapes from the breathing tubes and the patient's respiratory tract after the mask has been removed (fig. 3). Leaks may also occur at other points in the gas channels of the apparatus. If, therefore, the patient, the gas machine

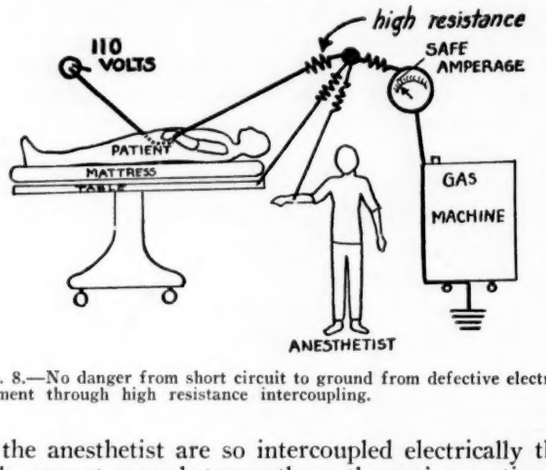

Fig. 8.—No danger from short circuit to ground from defective electrical equipment through high resistance intercoupling.

and the anesthetist are so intercoupled electrically that sparks cannot occur between them, the major portion of all electrostatic potentials having dangerous possibilities is eliminated. The operating table may be included in this group with advantage (fig. 4).

There are two objections to electrical intercoupling when made by conductors of high conductivity, such as wire. One is the increased hazard from electrical shock. A patient forming part of such an intercoupling system suffers a greater chance of being grounded than does a patient not so connected and hence runs a greater risk of serious injury from accidental contact with the lighting circuit, as from defective electrical equipment (fig. 5). A second objection is that such an intercoupled group has greater electrostatic capacity than any one of its component bodies alone. This increase in capacity results in a more intense spark from any charged body that may make contact with the group (fig. 6). These two objections may be overcome by making the intercoupling connectors of high resistance, so arranged that

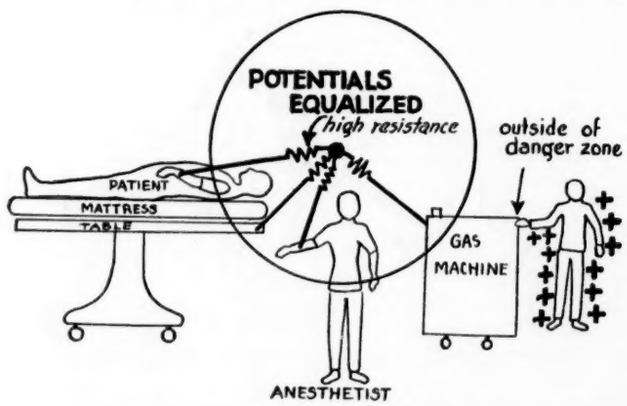

Fig. 9.—Reduction of tendency of intercoupled bodies to act as a single body of high electrostatic capacity by high resistance intercoupling.

the resistance between any two bodies in the intercoupled group is of the order of 1 megohm (1,000,000 ohms) (fig. 7). Such intercoupling limits any current from a 60 cycle, 110 volt lighting circuit which might accidentally pass through these connections to 0.1 milliampere (fig. 8). Various published reports place the minimal lethal current at from 50 to 100 milliamperes. Therefore through its possible connection of the patient to ground, 1 megohm intercoupling cannot subject him to a current of more than 1 per cent of the minimal lethal current.

One megohm intercoupling also effectively reduces the tendency of the intercoupled bodies to act as a single body of high electrostatic capacity. Although the group may receive more energy from any charged body than would one member alone, a considerable portion of the excess is dissipated harmlessly in the resistors (fig. 9).

Most important of all, the introduction of high resistance between the intercoupled bodies does not materially increase the time required for equalization of charges. Using the values of electrostatic capacity present in the interconnected group, as determined by actual measurement,[1] it has been found that any potential which may be established will be reduced to 1 per cent of its value in one one-thousandth second (fig. 10). This indicates that the duration of any charge which may be placed on any member of the group is extremely

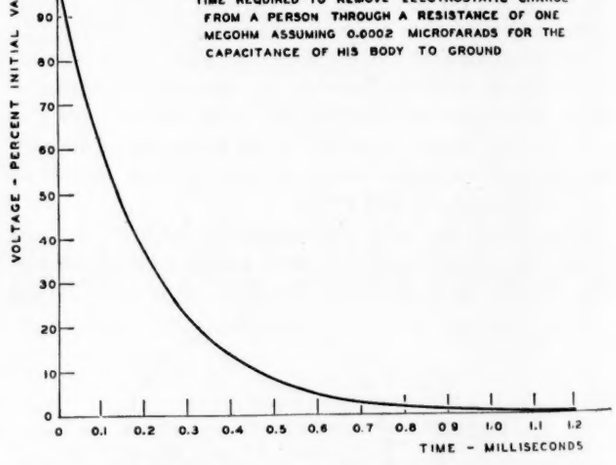

Fig. 10.—Reduction of any potential to 1 per cent of its value in one one-thousandth second.

short. It also indicates that in most cases charges will be removed as rapidly as they can be put on and hence that dangerous potentials cannot be established. It is evident, therefore, that when connectors of 1 megohm resistance are used for intercoupling, electrostatic sparks between connected objects will be adequately prevented.

If the floor of the operating room is electrically conductive, it should be included in the intercoupled group. Then all persons with conductive shoes who enter the room and many other objects in the room will automatically join the intercoupled group through the medium of the floor. Similarly, connection to the building ground will bring all grounded bodies to the same electrostatic potential as the intercoupled group. In order that such grounding shall introduce no hazard of electrical shock, it must be made through high resistance. By bringing these additional bodies to the same potential, connection of the intercoupled group to the conductive floor or to the ground furnishes considerable additional protection against static spark.

1. Measurements of electrostatic capacities of the patient to the table, of the anesthetist to the ground and of the table to the ground have shown that the order of magnitude of any capacity involved in the interconnection is from 100 to 200 micromicrofarads.

A unit to maintain the desired interconnection has been made available.[2] It consists of a small metal case containing a network of resistors so arranged as to present four terminals, between any two of which there is a resistance of 1 megohm. The case itself forms one terminal, and from three other terminals run three wires. The intercoupler may be attached to the operating table and the three wires run to the gas machine, the patient and the anesthetist (fig. 11). It may, if more convenient, be attached to the gas machine and the wires run to the table, patient and anesthetist. Bracelets are used to make connection to the patient and anesthetist. Contact with a conductive floor may be made by a drag chain from the gas machine or by a wire from a fifth terminal with which some of the intercouplers are equipped. The fifth terminal may also be used for connection to the ground.

In the absence of such mechanical means of intercoupling, connection frequently exists through contact of the anesthetist's hands with the gas machine and with the patient (fig. 12). By some this is done without thought of the safeguard which it provides, but by others it is carefully planned and conscientiously carried out as a protection against static spark. However, any

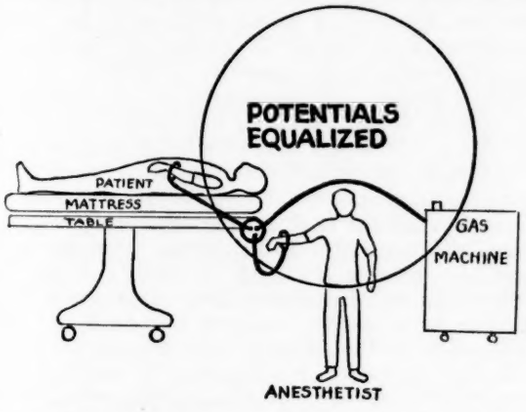

Fig. 11.—Resistance of one megohm between intercoupled bodies by means of the Horton Intercoupler.

interruption, even though extremely brief, in the contact of the anesthetist with the patient and the machine, would introduce the possibility of a spark when contact is reestablished. We believe that such practice is too dependent on unremitting vigilance to be recommended.

Whatever method of intercoupling is used, all connections should be made before anesthesia is started and maintained until after the mask has been removed at the end of anesthesia and explosive gases have been flushed out of the machine and the patient. Any unintercoupled person or object must not be allowed near regions of possible escape of explosive ga (mask, breathing tubes or escape valve) without first making contact with one of the group at a point remote from such regions. Even if he is highly charged and a spark occurs, it will then be outside the danger zone of explosive mixtures and therefore harmless (fig. 13). If the anesthetist has to leave the group, he must reapproach the group in the same manner as should any other unintercoupled person.

The use of high resistance intercoupling in no way eliminates the need for other precautions against static spark. High relative humidity should be maintained where equipment permits, because it is an additional,

2. Obtainable from the Technequipment Company, 9 Station Street, Brookline, Mass.

though unreliable, means of intercoupling. The carbon dioxide absorption method offers two distinct safeguards: Gases are not constantly blown out into the room to come in contact with various sources of ignition, and after the first few breaths the moisture within the apparatus furnishes a very considerable degree of protection against internal static spark. Additional protection would be provided by rapid dilution of any gas that does escape by a stream of air in the vicinity of

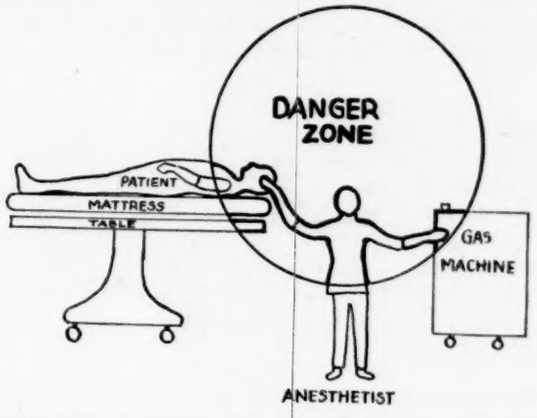

Fig. 12.—Connection through contact of hands in absence of mechanical intercoupling.

the mask and the escape valve. Rubber parts should be wet before they are used. Cloth covers should not be used on gas machines. To disconnect any portion of the breathing apparatus while it contains explosive gas is to invite danger, which is reduced but probably not always eliminated by intercoupling. The unnecessary and extremely dangerous habit of removing the breathing bag during anesthesia to dump its contents is probably responsible for more than one of the recent fatal explosions. If the bag hangs from the machine by a metal to metal slip joint, the two pieces of metal should be chained or wired together. If this is not done and the bag should fall, its collapse would force gas to flow through the newly created gap and at the same instant might produce a charge which could spark across that gap. One recent explosion may have occurred in this manner.

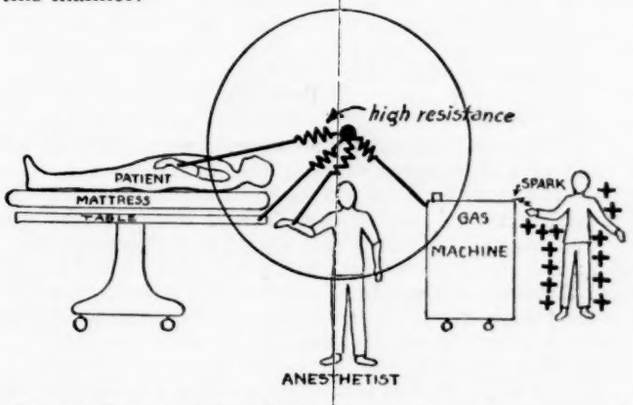

Fig. 13.—Safe manner for a body to approach intercoupled group: spark (if any) outside danger zone.

Protection against sources of ignition other than static spark does not fall within the realm of this discussion. Nevertheless a few warnings must be sounded. Too often it is forgotten that ether, vinyl ether and ethyl chloride form highly explosive mixtures in air, in oxygen and in nitrous oxide. It is frequently forgotten that

flushing inflammable gases from the machine with oxygen is extremely hazardous, that nitrous oxide supports combustion as does oxygen, and that a brief flushing of the patient and the machine with a nonexplosive mixture does not render conditions safe for the use of the cautery on the lung or on the neck. Machines are still in common use and are still commonly produced by some manufacturers through which gases may pass under high pressure from one tank into another. Electrical apparatus used in operating rooms is often astoundingly defective in design and in maintenance, cautery apparatus being among the worst offenders.

CONCLUSIONS

High resistance intercoupling is not a panacea against explosion, yet if properly carried out it will eliminate an important source of ignition that lies in the group frequently referred to as the most baffling to control, namely static sparks. Such intercoupling introduces no hazard in itself. The majority of the explosions presumably initiated by static spark that have recently come to our attention would have been prevented by this type of intercoupling.

NOTE.—Since this article was written, progress has been made by one of us (J. W. H.) in developing a method for the more nearly complete elimination of dangerous electrostatic potentials from the entire operating room and from all persons and objects in it. A description of the method will be published as soon as experimental tests have been made and specifications prepared. Pending the development of this method and its installation in operating rooms, we advise intercoupling as described in this article.

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ABSTRACT OF DISCUSSION

DR. EVERETT A. TYLER, Philadelphia: I want to compliment the authors on their fine presentation. However, let us keep our feet on the ground about the hysteria relative to anesthetic explosions, which has been aided by newspaper publicity. The relative incidence of explosions is very low. Explosions have occurred as long as explodable anesthetics have been in use. Static charges have always been with us. Explosions have occurred through carelessness or ignorance of the fact that static charges can be generated by moving or rubbing rubber parts of machines. Many of these could have been avoided by properly grounding the anesthetist and the machine or by deliberate grounding by the anesthetist of himself and the machine before moving the rubber part. Explosions other than by static have occurred either from faulty construction of ether vaporizer-suction apparatus or by ignorance in trying to use a cautery or electric scalpel in a stream of explodable gas. As the authors pointed out, the use of a tight, completely closed method of administration of explodable anesthetics will contribute to increased safety, particularly if too much pressure is not used in the rebreathing bag. This is emphasized by the observations of Dr. Connell with regard to cyclopropane that, with a leak of 4 liters a minute at a point beyond 4 or 5 inches from that leak, the gas is so diffused that no explosion can occur. Certain explodable anesthetics are of great value and cannot at present be entirely superseded by other nonexplodable forms. Let us not ban an explodable anesthetic given by a completely closed system for one in which a completely open system is used and the explodable gas diffused throughout the operating room, the concentration of the gas in the operating room depending on the length of the anesthesia and the efficacy of room ventilation. Let us take all the precautions possible to avoid static, namely humidity, ventilation, the Horton intercoupler, rubber parts moistened with calcium chloride, discontinuance of wool blankets in operating room, discontinuance of rubber soled shoes and static producing covers on the anesthetist's stool and so on but withhold judgment as to the value of these precautions and the banning of certain anesthetics until the committee of which Dr. Woodbridge and Professor Horton are members can present definite scientific conclusions.

DR. RALPH M. WATERS, Madison, Wis.: I shall not discuss the subject except to emphasize Dr. Tyler's word of caution that we do not get hysterical about this and that we use more sense until we know more about it. I should like to mention points of view that differ from the authors' but time forbids.

DR. ARNO B. LUCKHARDT, Chicago: In addition to the precautions that have been mentioned here, I should like to propose a few items for consideration, namely that perhaps some catalyst inside the machine, perhaps metal acting on gases that are highly explosive and somewhat under pressure, may lead to an explosion. All of us remember during our studies in chemistry what a powerful catalyst platinum black is, and that it will effect readily and at ordinary temperature marked chemical reactions which ordinarily take place only at higher temperatures. I have also considered that certain substances in the expired air of the patient might act as such a cataylst. And, third, the air in the room might be ionized by radium in order to dissipate electrostatic charges. This last suggestion is not new. Dr. Burger of New York got the same idea and is now working in a practical way on its solution, namely the use of slag in the isolation of radium from carnotite or from the isolation of uranium salts, which slag might be incorporated in the walls of the operating room and, by ionizing the air, dissipate electrostatic sparks. The time of "questionnairing" is over. It is time to do some laboratory work on the subject, which I tried to have done in 1924 when I attempted to get an appropriation from or through the University of Chicago and was simply told to write another paper on the dangers of the static spark and its dangers. The problem did not seem "fundamental" enough although it was sufficiently important to save the lives of countless human beings who were being operated on daily the world over, under ether anesthesia, nitrous oxide-oxygen-ether, ethylene-oxygen or cyclopropane-oxygen anesthesia. One anesthetic death as the result of an explosion while using the aforementioned anesthetics and occurring when the wife or daughter of a member of one of the officials of the monied foundations was on the operating table would result in a real investigation by competent physicists working in conjunction with biochemists and anesthetists. But this has not occurred. Until it does, thousands of dollars will be allocated for the study of such "fundamental" problems as "psychoanalysis" and similar medical fads.

J. W. HORTON, Sc.D., Boston: Ionization has already received consideration. Computations show that it would be necessary to increase the ionization in the air some thousandfold over the maximum summer ionization, and the significance of that is that ionization due to natural causes is undoubtedly not the reason for the reduced number of explosions in the summer. Any means of ionization must be carefully watched to make sure it does not produce ozone, because ozone and ethylene and ozone and cyclopropane are spontaneously combustible. As to the hysteria, as a physicist I sympathize with that point of view. However, when an anesthetist comes to you and says "I had an explosion today, what can I do to prevent that explosion from occurring again tomorrow?" we feel that something analogous to the intercoupler should at least be recommended, realizing that it is by no means ideal and we certainly hope not the final solution to the problem.

Legal Procedure for Hospitalization.—The legal procedure for the certification and commitment of an individual as insane is in general the same for the various European nations as for the various states of the United States. On the request of a relative of the patient or of some other interested party, the patient is examined by one or two physicians who write out a certificate stating their findings and recommendations for commitment. This certificate, usually with the relative's written consent to commitment, is then sent to the local magistrate, who legally certifies the patient's insanity and provides for his commitment and detention in a mental institution.—Landis, Carney, and Page, James D.: Modern Society and Mental Disease, New York, Farrar & Rinehart, Inc., 1938.

TREATMENT OF PNEUMOCOCCIC PNEUMONIA

WITH CONCENTRATED ANTIPNEUMOCOCCUS RABBIT SERUM

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Although rabbit immune serum was first used in the treatment of pneumonia in 1891 [1] it was completely neglected as a therapeutic agent until 1937, when its use was revived by Horsfall, Goodner, MacLeod and Harris.[2] A systematic investigation of the antibodies contained in antipneumococcus horse and rabbit serums had been in progress at the Hospital of the Rockefeller Institute for several years and the results of these studies led Horsfall and his co-workers to conclude that antipneumococcus rabbit serum might possess certain practical as well as theoretical advantages over horse serum in the treatment of pneumonia. Among the advantages stressed were the following:

1. Unconcentrated rabbit antiserum has a relatively high mouse protection potency as compared with unconcentrated horse antiserum.[2]

2. The antibody contained in antipneumococcus rabbit serum is three or four times smaller than that contained in horse antiserum and might therefore be expected to penetrate infected tissues more readily.[3]

3. More than optimum amounts of horse antiserum inhibit the protective action of the serum in mouse protection tests, but no such "prozone" phenomenon can be demonstrated with rabbit serum.[4]

4. Rabbits may be immunized in four weeks,[5] whereas six months may be required to obtain potent horse serum.

5. The cost of production of rabbit antiserum is estimated to be considerably less than that of horse antiserum, especially for the rarer types of pneumonia, for which it is desirable to produce relatively small amounts of serum.[2]

Very few reports have been published on the use of antipneumococcus rabbit serum in the treatment of pneumonia. Horsfall, Goodner, MacLeod and Harris reviewed twenty-two cases in 1937, and Horsfall, Goodner and MacLeod [6] added a second series in 1938, bringing the total to sixty-seven cases. More recently Loughlin, Bennett and Spitz [7] presented an analysis of sixty-nine cases and Nissen [8] in Copenhagen mentioned a series of 100 cases but published the clinical data on only thirty-one. Unconcentrated rabbit serum was used in all the cases included in these earlier reports, and, although concentrated rabbit serum has been employed in several large clinics in this country for more than a year, little data relating to its clinical use are as yet available.

Finland and Brown [9] have recently published the results of the treatment of pneumonia with concentrated rabbit serum in forty cases, and the records of five cases (in addition to three of treatment with unconcentrated rabbit serum) are included in Bullowa's monograph "The Management of the Pneumonias." [10]

My purpose in this paper is to report a series of fifty cases of pneumococcic pneumonia treated with concentrated antipneumococcus rabbit serum and to review briefly the data now available regarding rabbit serum treatment in general. It is thought advisable to summarize the data on rabbit serum in order that they may be made available for comparison with results obtained with sulfapyridine, a chemotherapeutic agent which appears at present to offer a highly effective and practical method of treating pneumococcic infections.

METHODS

Case Material.—During the past year seventy-one patients, fifty-eight in the Johns Hopkins Hospital and thirteen in the Union Memorial Hospital,[11] were treated with concentrated antipneumococcus rabbit serum. All patients suffering from pneumonia due to pneumococci of types I to VIII and XIV were treated with antiserum except when there was a definite contraindication to protein therapy. Twenty-one patients received in addition to rabbit serum either horse antiserum or sulfapyridine, and they have not been included in the present analysis since it is impossible to evaluate the effectiveness of rabbit serum per se when it is used in conjunction with another specific therapeutic agent.[12] The significant clinical data on the fifty patients treated with rabbit serum alone are presented in detail. All patients treated have been included regardless of the amount of serum administered or the time of survival.

Bacteriology.—The typing of sputum was done by the Neufeld method and was confirmed by mouse inoculation and in a few cases by typing from ascitic fluid cultures. Blood for cultures was taken at the time of the patient's admission to the hospital and whenever indicated during the course of treatment. The blood cultures were made in blood agar, dextrose blood agar and dextrose beef infusion blood broth. Colony counts were made in cases of bacteremia.

Serum.—All the concentrated antipneumococcus rabbit serum was supplied by the Lederle Laboratories,

From the Medical Clinic of the Johns Hopkins Hospital and the Johns Hopkins University School of Medicine.

1. Klemperer, G., and Klemperer, F.: Versuche über Immunisierung und Heilung bei der Pneumokokkeninfection, Berl. klin. Wchnschr. **28:** 869 (Aug. 31) 1891.

2. Horsfall, F. L.; Goodner, Kenneth; MacLeod, C. M., and Harris, A. H.: Antipneumococcus Rabbit Serum as a Therapeutic Agent in Lobar Pneumonia, J. A. M. A. **108:** 1483 (May 1) 1937.

3. Elford, W. J.; Grabar, Pierre, and Fischer, Werner: Ultrafiltration Studies with Normal Horse Serum, Biochem. J. **30:** 92 (Jan.) 1936. Goodner, Kenneth; Horsfall, F. L., and Bauer, J. H.: Ultrafiltration of Type I Antipneumococcal Serum, Proc. Soc. Exper. Biol. & Med. **34:** 617 (June) 1936. Biscoe, J.; Hercik, F., and Wykoff, R. W. G.: The Size of Antibodies, Science **83:** 602 (June 19) 1936. Heidelberger, Michael, and Pedersen, K. O.: The Molecular Weight of Antibodies, J. Exper. Med. **65:** 393 (March) 1937.

4. Goodner, Kenneth, and Horsfall, F. L.: The Protective Action of Type I Antipneumococcus Serum in Mice: IV. The Prozone, J. Exper. Med. **64:** 369 (Sept.) 1936.

5. Goodner, Kenneth; Horsfall, F. L., and Dubos, R. J.: Type Specific Antipneumococcic Rabbit Serum for Therapeutic Purposes: Production, Processing and Standardization, J. Immunol. **33:** 279 (Oct.) 1937.

6. Horsfall, F. L.; Goodner, Kenneth, and MacLeod, C. M.: Antipneumococcus Rabbit Serum as a Therapeutic Agent in Lobar Pneumonia: II. Additional Observations in Pneumococcus Pneumonia of Nine Different Types, New York State J. Med. **38:** 245 (Feb. 15) 1938.

7. Loughlin, E. H.; Bennett, R. H., and Spitz, S. H.: The Treatment of Lobar Pneumonia with Rabbit Antipneumococcus Serum, J. A. M. A. **111:** 497 (Aug. 6) 1938.

8. Nissen, N. I.: Serotherapeutic Studies on Lobar Pneumonia, Especially Treatment with Rabbit Antipneumococcus Serum, Acta Med. Scandinav. **98:** 231 (Jan.) 1939.

9. Finland, Maxwell, and Brown, J. W.: Specific Treatment of Pneumococcus Type I Pneumonia, Am. J. M. Sc. **197:** 151 (Feb.) 1939; Specific Treatment of Pneumococcus Type II Pneumonia, ibid. **197:** 369 (March) 1939; Specific Treatment of Pneumococcus Type V and Type VII Pneumonias, ibid. **197:** 381 (March) 1939; The Treatment of Pneumococcus Type III Pneumonia with Specific Serum and Sulfanilamide, New England J. Med. **220:** 365 (March 2) 1939.

10. Bullowa, J. G. M.: The Management of the Pneumonias, New York, Oxford University Press, 1937.

11. The cases from the Union Memorial Hospital are presented through the courtesy of Dr. Robley Bates, resident in medicine.

12. This selection of cases does not lower the case fatality rate; on the contrary, it increases it from 18.3 to 20.0 per cent.

Inc., and E. R. Squibb & Sons. The antibody titer of the serum varied from 1,000 to 11,000 units per cubic centimeter.

Sensitivity Test.—The routine conjunctival and intradermal tests with 0.1 cc. of a 1 to 100 dilution of normal rabbit serum as well as the intravenous test [2] with 5 cc. of the same dilution were carried out before

TABLE 1.—*Pneumonia Due to Pneumococcus Type I Treated with Type I Antipneumococcus Rabbit Serum*

No.	Race and Sex	Age	Day of Illness	Physical Exam. and X-ray	W.B.C. (x 1000)	Bacteremia (col. per c.c.)	Complications	Total Units of Serum	Crisis* hrs. after first serum	Thermal Reaction	Serum Sickness	Final Result †
1	N♂	13	5		16.4		sterile pleural effusion	350,000	12		+	R.
2	W♂	82	3		15.0	30	empyema, arteriosclerotic heart disease	350,000				D.
3	N♂	48	4		9.5		thrombophlebitis at site of injection of serum	170,000	8	+	+	R.
4	W♂	33	6		29.0	40	auricular fibrillation, cardiac failure	450,000	4			D.
5	W♂	25	6		16.5			150,000	9		+	R.
6	W♂	38	4		16.0			200,000	4			R.
7	N♂	52	6		16.4	13		350,000	24		+	R.
8	W♂	23	7		14.0	5	empyema	500,000	24			R.
9	W♀	19	3		12.1		pregnancy, spontaneous abortion	360,000	7		+	R.
10	W♀	82	2		28.3		uremia, cardiac failure	330,000				D.
11	W♀	39	7		29.5	<1	empyema	150,000	3		+	R.
12	W♂	23	4		6.6	1		200,000	2		+	R.
13	N♂	32	1		28.2			100,000	4	+		R.
14	W♀	44	7		10.6		sterile pleural effusion	200,000	5			R.
15	W♀	25	2		25.8			450,000	5	+	+	R.
16	N♂	68	4		11.1	6	diabetes, hypertensive sclerosis, spread ? organism	650,000	32			D.
17	N♂	27	4		20.6			150,000	7		+	R.
18	W♂	24	3		21.0			100,000	6		+	R.
19	W♀	27	1		24.0			145,000	3			R.
20	W♂	65	3		14.7	<1	arteriosclerotic heart disease	700,000	9		+	R.
21	N♂	15	6		24.0			50,000	4			R.
23	N♂	45	5		19.2			700,000	5	+		R.
24	N♂	32	3		9.0			250,000	4	+		R.

* Beginning of crisis † D = Died R = Recovered

serum therapy was begun. Treatment with antiserum was avoided if possible when there was a history of bronchial asthma.

Administration of Serum.—An initial dose of 1 cc. of therapeutic serum diluted to 20 cc. with physiologic solution of sodium chloride was slowly injected intravenously over a period of twenty minutes. One hour later a volume of serum containing approximately 50,000 units was injected undiluted or diluted to 20 cc. with physiologic solution of sodium chloride. This dose was repeated every hour until sufficient antibody had been administered. Whenever a thermal reaction was encountered the hyperpyrexia was allowed to subside before the next injection of serum was given. Therapy was not discontinued because of chill reactions. The chills were treated in some cases with intravenous injections of calcium chloride,[13] and, although this substance occasionally terminated the rigor abruptly, it was found at other times to be quite ineffective.

Control of the Dose of Serum.—The total dose of antibody was controlled by means of the cutaneous test with the specific capsular polysaccharide [14] in thirty-six of the fifty cases.[15] In those cases in which the Francis cutaneous test was not employed the serum was given more slowly, usually at from two to four hour intervals, and its administration was discontinued as soon as the temperature began to fall. The urine of critically ill patients was tested for specific polysaccharide,[16] and whenever this was found even larger doses of serum were given, often as much as 100,000 units an hour.

RESULTS

The important clinical data taken from the hospital records of the fifty patients treated with concentrated antipneumococcus rabbit serum are presented in tables 1, 2 and 3. The cases may be divided conveniently into three groups: (1) those of pneumonia of type I, (2) those of pneumonia of type III and (3) those of pneumonia of types II, IV, V, VI, VII, VIII and XIV.

Type I: Twenty-four patients with type I pneumonia were treated with concentrated type I antipneumococcus rabbit serum. Eight had bacteremia at the time of admission, seven showed signs of multilobar consolidation and in three empyema developed. Treatment was begun on the average during the fourth day of illness, and the average time between the first injection of serum and the beginning of the crisis was nine hours. The average amount of serum used was approximately 300,000 units; the total amount given in each case varied from 50,000 to 700,000 units. Delayed serum sickness was observed in eleven cases and thermal reactions were encountered in five. Thrombophlebitis developed in one case at the site of injection of the serum. No anaphylactic reactions were encountered.

Of the four patients who died, all had multilobar consolidation, two were 82 years of age and a third was 68. The fourth patient was a 33 year old white man whose blood culture on admission showed forty colonies per cubic centimeter and who made an excellent response to serum therapy, with a prompt crisis, only to die two days later of cardiac failure during an attack of paroxysmal auricular fibrillation.

TABLE 2.—*Pneumonia Due to Pneumococcus Type III Treated with Type III Antipneumococcus Rabbit Serum*

No.	Race and Sex	Age	Day of Illness	Physical Exam. and X-ray	W.B.C. (x 1000)	Bacteremia (col. per c.c.)	Complications	Total Units of Serum	Crisis* hrs. after first serum	Thermal Reaction	Serum Sickness	Final Result †
1	W♀	65	4		38.0		arteriosclerotic heart disease	320,000				D
2	N♂	37	3		21.2			160,000	9	+	+	R
3	N♂	32	2		22.3			180,000	14	+	+	R
4	N♂	35	4		4.0	<1	pericarditis shock	620,000				D
5	W♂	69	5		11.5		uremia, auricular fibrillation, cardiac failure	380,000		+		D
6	N♀	50	3		16.9		relapse caused by Type III Pneumococcus	780,000	6			R.
7	W♂	28	2		16.6			360,000	22		+	R
8	W♂	69	3		26.0		? coronary occlusion	180,000	18	+		D.

* Beginning of crisis † D = Died R = Recovered

Type III: Type III pneumococci were isolated from the sputum of eight patients, all of whom were treated with concentrated type III antipneumococcus rabbit serum. The average age was 44, but three of the four patients who died were 65 or more. There was only one patient with bacteremia, but four had more than one lobe involved. Among the patients who recovered, the time between onset of therapy and beginning of

13. Beeson, P. B., and Hoagland, C. L.: Use of Calcium Chloride in the Relief of Chills Following Serum Administration, Proc. Soc. Exper. Biol. & Med. **38**: 160 (Feb.) 1938.

14. Francis, Thomas, Jr.: The Value of the Skin Test with Type Specific Capsular Polysaccharide in the Serum Treatment of Type I Pneumococcus Pneumonia, J. Exper. Med. **57**: 617 (April) 1933. MacLeod, C. M.; Hoagland, C. L., and Beeson, P. B.: The Use of the Skin Test with Type Specific Polysaccharides in the Control of Serum Dosage in Pneumococcal Pneumonia, J. Clin. Investigation **17**: 739 (Nov.) 1938.

15. A detailed report of further studies on the use of the polysaccharide cutaneous test will be published elsewhere.

16. Dochez, A. R., and Avery, O. T.: The Elaboration of Specific Soluble Substance by Pneumococcus During Growth, J. Exper. Med. **26**: 477 (Oct.) 1917. Cruickshank, R.: Urinary Excretion of Pneumococcus Polysaccharide, J. Path. & Bact. **46**: 67 (Jan.) 1938.

crisis varied from six to twenty-two hours. In three the response was dramatic and seemed to be related directly to the serum treatment. There were four thermal reactions and three cases of serum sickness. None of the patients had empyema.

A further analysis of the fatalities is of some interest. The only young patient who died of type III pneumonia was a 35 year old Negro admitted to the hospital in shock on the fourth day of illness. Three lobes were involved and there were physical signs of pericarditis. The blood culture was positive and the leukocyte count was only 4,000. In spite of vigorous intravenous therapy the patient failed to respond and died twelve hours after admission to the hospital. The other three fatalities were of elderly patients, all of whom showed clinical evidence of arteriosclerotic heart disease. One had auricular fibrillation and congestive heart failure and died of uremia after a fairly good response to serum therapy, and another died very suddenly of what was thought to be coronary occlusion on the day after crisis.

Types II, IV, V, VI, VII, VIII and XIV: The last group is a heterogeneous one composed of a single case of type II pneumonia and seventeen cases of pneumonia due to pneumococci of the "higher types." These are considered together only because there are too few for separate analyses according to type. The average age was 37. Four patients had more than one lobe involved, and three had bacteremia. On the average, treatment was begun on the fourth day of illness and the dose amounted to approximately 240,000 units of antiserum. It should be pointed out that in case 1 (type VIII) and case 2 (type IV) treatment was probably begun at about the time of natural crisis, since only a very small amount of antibody was required to bring the temperature to normal. Fifteen of the sixteen patients who recovered responded well to therapy, crisis occurring within one to sixteen hours after the first injection of serum. The sixteenth patient failed to have a crisis, and the temperature remained elevated for more than two weeks. The course of his illness was complicated, however, by the presence of a severe infection of the urinary tract. Thermal reactions were encountered in six cases and serum sickness in four. There was no empyema.

Of the patients who died the first was a 34 year old white man who entered the hospital on the fifth day of an attack of type II lobar pneumonia involving the lower lobes of both lungs. The white blood cell count was 4,000, and the blood culture showed 680 colonies per cubic centimeter. After 300,000 units of antibody was given the Francis cutaneous test became positive and the temperature fell to 101 F. Within a few hours, however, the temperature rose to 103 F. and signs of meningitis developed, and the patient died forty hours after admission to the hospital. Blood taken for culture just before death was sterile. Autopsy revealed purulent meningitis due to pneumococcus type II and extensive lobar pneumonia involving the lower lobes of both lungs. The second patient who died was a 31 year old white woman who had been suffering from attacks of severe bronchial asthma for several years. She was admitted to the medical ward two days post partum with pneumonia due to pneumococcus type XIV involving three lobes. The blood taken for culture at the time of admission was sterile. Because of the history of asthma serum was withheld for three days, but on the fourth day a second blood culture revealed seventy-five colonies of type XIV pneumococci per cubic centimeter and it became apparent that the pneumonia was progressing rapidly. Serum therapy was begun with great caution. In spite of the fact that all the sensitivity tests were negative and the patient showed no reaction to the first two injections of serum, she died suddenly about five minutes after the third intravenous treatment. The sudden death suggested an anaphylactic reaction but the diagnosis could not be definitely established.

COMMENT

As has already been emphasized by Horsfall, Goodner and MacLeod,[6] it is extremely difficult to prepare antiserum from either horses or rabbits which is potent against type III pneumococci. It is necessary therefore to consider type III pneumonia separately in discussing the final results of serum treatment. There were four fatalities in the eight cases of treated type III pneumonia, giving a case fatality rate of 50 per cent, which corresponds closely with the figures reported by Horsfall, Goodner and MacLeod, six deaths in a group of thirteen cases. In spite of the apparent ineffectiveness of the serum in lowering the mortality rate of type III pneumonia, it should be repeated that certain patients seemed to respond dramatically to serum, as evidenced by a prompt crisis. Also it is worth mentioning that seven of the ten fatalities were in patients over 57 and the other three in patients who had bacteremia at the time of admission to the hospital. Although these facts suggest possible explanations for the high case fatality rate of the type III pneumonia treated with rabbit serum, there is no conclusive evidence as yet that specific antiserum prepared either from horses or

TABLE 3.—*Pneumonia Due to Pneumococci of Types II, IV, V, VI, VII and XIV Treated with Antipneumococcus Rabbit Serum*

No.	Race and Sex	Age	Day of Illness	Physical Signs and X-ray	W.B.C. (x1000)	Bacteremia (no. per c.m.)	Complications	Total Units of Serum	Units/c.c. at time of first Serum	Thermal Reaction	Serum Sickness	Final Result †
					Type II							
1	W♂	34	5		4.0	680	meningitis	300,000				D.
					Type IV							
1	N♂	52	2		21.8			1,320,000	16			R.
2	W♀	45	4		11.1			14,000	1			R.
3	N♀	38	6		12.7		complicating urinary tract infection	670,000	Lysis	+		R.
					Type V							
1	W♀	19	2		42.0			100,000	5			R.
					Type VI							
1	W♀	24	1		20.9			211,000	12		+	R.
					Type VII							
1	W♂	38	3		21.0		sterile pleural effusion	100,000	1		+	R.
					Type VIII							
1	N♂	42	2		21.0			6,000	2	+		R.
2	N♂	28	7		19.1			166,000	6	+		R.
3	N♂	14	5		11.9			60,000	4	+		R.
4	N♂	28	1		19.5		rheumatic endocarditis	234,000	7			R.
5	W♂	49	2		30.0		sterile pleural effusion	180,000	4			R.
6	W♂	24	3		12.0		sterile pleural effusion	180,000	12		+	R.
					Type XIV							
1	N♀	50	5		28.8	2	otitis media	122,000	13	+		R.
2	N♂	65	8		11.3			122,000	5	+	+	R.
3	W♂	17	5		10.5			120,000	6			R.
4	N♂	31	5		15.1	75	bronchial asthma, hemoplastic shock	60,000				D.
5	W♂	66	3		26.6			340,000	4			R.

* Beginning of crisis † D = Died R. = Recovered

from rabbits is effective in the treatment of type III pneumonia. The cases of type III pneumonia therefore will not be considered in the following discussion.

A summary of the most important clinical data obtained in the present series of forty-two cases of pneumonia treated with concentrated antipneumococcus rabbit serum is presented in table 4. Certain points are worthy of special emphasis. Eight different types of pneumonia were treated, and the pneumonia encountered was moderately severe, as evidenced by the presence of bacteremia in 26 per cent of the cases and multilobar consolidation in a like percentage. Treatment was begun rather late in most of the cases, the average first day of treatment being the fourth day of illness. Approximately 275,000 units of antibody was required on the average to bring about the desired therapeutic result, a total dose which is relatively large as compared with the amounts of horse serum usually recommended for the corresponding types of pneumonia. All but six patients recovered, and in the majority of cases the response to serum therapy was prompt, the time from the first injection of antiserum to the beginning of crisis averaging only eight hours. There were three cases of empyema, the pneumococci in all being of type I. Reactions to the rabbit serum were relatively common; 26 per cent of the patients experienced thermal reactions to one or more injections of serum and 36 per cent had delayed serum sickness. It is of some interest that all the patients who failed to recover were extremely ill at the time of admission to the hospital, all having multilobar consolidation. The blood cultures of five showed more than five colonies of pneumococci per cubic centimeter, and the one patient whose blood culture was sterile was an 82 year old white woman who finally died of congestive heart failure and uremia.

The number of cases here reported is obviously far too small to warrant any general conclusions as regards the effectiveness of antipneumococcus rabbit serum. Previous publications regarding the use of rabbit serum have likewise dealt only with relatively small numbers of cases. All the cases, however, which have been reported to date,[17] including the present series, total more than 260 and constitute a group sufficiently large to yield data of some statistical significance.

Twenty-six cases of type III pneumonia, twelve of which were fatal, were encountered in the collected series; these have not been included in the final analysis for reasons already mentioned. A summary of the data from the remaining 237 cases is presented in tables 5 and 6 and when briefly analyzed reveals the following important facts:

1. The high incidence of bacteremia (33.8 per cent) indicates that the pneumonia of the patients treated with antipneumococcus rabbit serum was of more than average severity.

2. The case fatality rate of 9.3 per cent was considerably lower than that reported in any similar series of cases of pneumonia treated with antipneumococcus horse serum.

3. The average total dose of rabbit serum (units) used in these cases was somewhat larger than the usual total dose of horse serum.

TABLE 4.—*Pneumococcic Pneumonia Treated With Concentrated Antipneumococcus Rabbit Serum* *

Type	Number of Cases	Average Age	First Serum, Day of Illness, Average	Multilobar Consolidation, Number	Bacteremia, Number	Total Units of Serum, Average	Crisis,† Hours After First Serum, Average	Infected Pleural Exudate, Number	Thermal Reactions, Number	Serum Sickness, Number	Mortality, Percentage
I	24	36	4	7	8	303,000	9	3	5	11	16.7
II	1	34	5	1	1	300,000	..	0	0	0	100.0
IV	3	45	4	1	0	667,000	9	0	1	0	0.0
V	1	19	2	0	0	100,000	5	0	0	0	0.0
VI	1	24	1	0	0	211,000	12	0	0	1	0.0
VII	1	38	3	0	0	100,000	1	0	0	1	0.0
VIII	6	31	3	0	0	138,000	8	0	3	1	0.0
XIV	5	46	5	2	2	153,000	7	0	2	1	20.0
Total	42	..	..	11	11	.....	..	3	11	15	....
Average	..	37	4	..	..	276,000	8	..	..	..	....
Percentage	..	..	..	26	26	.....	..	7	26	36	14.3

* Not including cases of type III pneumonia.
† Beginning of crisis.

4. The incidence of empyema in patients treated with rabbit serum was no lower than that reported for patients treated with horse serum[18] in spite of the fact that the rabbit antibody is smaller and might be expected to penetrate the pleura more readily.

TABLE 5.—*Summary of Published Cases of Pneumococcic Pneumonia Treated with Antipneumoccus Rabbit Serum* *

Type	Number of Cases	First Serum, Day of Illness, Average†	Bacteremia, Number	Total‡ Units of Serum, Average	Infected Pleural Exudate, Number	Mortality, Percentage
I	116	4	46	226,000	13	11.2
II	35	4	12	332,000	4	11.4
IV	4	4	0	520,000	0	0.0
V	11	5	3	175,000	1	0.0
VI	3	17§	2	211,000	2	0.0
VII	32	3	7	443,000	0	6.3
VIII	23	3	4	187,000	0	4.3
XIV	11	5	4	394,000	0	9.1
XVII	1	2	0	.....	0	0.0
XIX	1	3	0	93,000	0	0.0
Total	237	..	80	.....	20	....
Average	..	4	..	272,000	..	....
Percentage	..	..	33.8	.....	8.4	9.3

* Not including cases of type III pneumonia or those in which any other form of specific treatment was used.
† Data not published for thirty-five of 237 cases.
§ Two patients with empyema treated in fifth and ninth weeks, respectively.
‡ Untitrated serum used by Horsfall, Goodner and MacLeod (fifty-four cases)[6] and by Bullowa (one case).[10]

5. Thermal reactions were relatively common in patients treated with rabbit serum (50 per cent)[19] as

17. Horsfall, Goodner and MacLeod.[6] Loughlin, Bennett and Spitz.[7] Nissen.[8] Finkand and Brown.[9] Bullowa.[10]

18. Bullowa, J. G. M., and Mayer, Edgar: The Hazards of the Induction of Pneumothorax in the Treatment of Lobar Pneumonia, J. A. M. A. **105**: 191 (July 20) 1935.

19. It should be emphasized that fewer chill reactions have been encountered with more recent lots of rabbit serum, and it seems likely that the incidence of thermal reactions may be lowered still further by improved methods of processing and refining.

compared with the generally accepted statistics for horse serum (20 per cent),[20] A higher incidence of chill reactions was encountered with unconcentrated serum (41 per cent).

6. Serum sickness developed in 41 per cent of the patients treated with rabbit serum, a morbidity rate significantly higher than the 19.8 per cent reported by Lord and Heffron [20] for concentrated horse serum. No appreciable difference was noted in the incidence of serum sickness in patients treated with concentrated and with unconcentrated rabbit serum.

CONCLUSION

Antipneumococcus rabbit serum, both concentrated and unconcentrated, has proved to be a highly effective agent in the treatment of severe pneumococcic pneumonia. Only in type III pneumonia does it seem to be ineffective as judged by the case fatality rate. Excellent results have been reported in the treatment of types I, II, V, VII, VIII and XIV pneumonia, the case fatality rates being even lower than those published recently by Bullowa [10] and Finland [9] for the corresponding types treated with horse serum. These data, however, do not offer convincing evidence that rabbit serum is more effective than horse serum, for the number of patients treated with rabbit serum is far too small for accurate comparison. Rabbit serum has been no more effective than horse serum in lowering the incidence of empyema. Very few anaphylactic reactions have been encountered with rabbit serum, but serum sickness and thermal reactions have been relatively common.

TABLE 6.—*Reactions to Unconcentrated and Concentrated Antipneumococcus Rabbit Serum* *

		Thermal Reactions			Serum Sickness	
	Number of Cases	Number of Cases	Incidence, Percentage	Recovery, Number of Cases	Number of Cases	Incidence, Percentage
Unconcentrated rabbit serum	169	91	54	151	64	40
Concentrated rabbit serum	90	37	41	76	30	42
Total.....	259	128	49	227	94	41

* Summary of cases collected from published reports.

SUMMARY

Fifty patients with pneumococcic pneumonia of nine different types were treated with concentrated antipneumococcus rabbit serum. Eight patients with type III pneumonia were treated and four died, the serum seeming to be relatively ineffective with this type. For the remaining forty-two patients the fatality rate was 14.3 per cent, although 26 per cent of the patients had bacteremia and a like number had multilobar consolidation. Excluding the patients with type III pneumonia, all the patients who failed to survive had more than one lobe involved and all had more than five colonies of pneumococci per cubic centimeter in the blood culture except one, an 82 year old white woman who died of congestive heart failure and uremia. The incidence of empyema was 7 per cent. Thermal reactions were relatively common, occurring in 26 per cent of the patients, and delayed serum sickness developed in more than one third of the patients.

20. Lord, F. T., and Heffron, Roderick: Pneumonia and Serum Therapy, New York, Commonwealth Fund, 1938.

PARATHYROID INSUFFICIENCY WITH SYMMETRICAL CEREBRAL CALCIFICATION

REPORT OF THREE CASES, IN ONE OF WHICH THE PATIENT WAS TREATED WITH DIHYDROTACHYSTEROL

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The roentgenographic finding of symmetrical cerebral calcification, particularly of the basal ganglions, is unusual, but the association of this condition with parathyroid insufficiency has been so frequent in our experience as to seem to justify this paper on the subject.

Symmetrical cerebral calcification (fig. 1) was first observed roentgenographically at the clinic in 1936. Since that time we have seen seven additional cases. The first six cases have been described elsewhere; [1] the seventh is included in this report. So far as we are aware, the three cases about to be reported are the first in which the roentgenographic observation of symmetrical cerebral calcification has been associated with parathyroid insufficiency. In at least seven cases of parathyroid insufficiency the characteristic pathologic changes in the brain were found at necropsy. In all these cases the calcification was of sufficient degree to have been observed roentgenographically had such an examination been made. Pick [2] reported the first two of these cases in 1902 and, a year later,[3] a third. Weimann [4] and Ostertag [5] subsequently reported single cases, and Schnabel [6] then added two more cases to the literature. Ostertag's patient had both tetany and Addison's disease.

REPORT OF CASES

CASE 1.—A schoolboy aged 13 years 7 months was brought to the clinic June 13, 1936, because of convulsive seizures. He had been considered healthy until the age of 7 years, when he had had his first convulsive seizure. These seizures had then continued to occur and had ranged in frequency from one a year to fifteen within twenty-four hours. More recently they had occurred on an average of once a month, the last attack having been on June 6, 1936.

The attacks were described as beginning with numbness and tingling in the left foot, followed by involuntary inversion of the foot and clenching of the right hand, forming a fist. This served as a warning to the patient and gave him time to

From the Section on Neurology (Dr. Eaton) and the Division of Medicine (Dr. Haines), the Mayo Clinic.
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1. Love, J. G.; Camp, J. D., and Eaton, L. M.: Symmetrical Cerebral Calcification, Particularly of the Basal Ganglia, Demonstrable Roentgenologically, Associated with Cyst of the Cavum Septi Pellucidi and Cavum Vergae, Proc. Staff Meet., Mayo Clin. **13:** 225-232 (April 13) 1938. Eaton, L. M.: Symmetrical Cerebral Calcification, Particularly of the Basal Ganglia, Demonstrable Roentgenographically; Calcification of the Finer Cerebral Blood Vessels, Thesis (M.S. in Neurology), University of Minnesota. Eaton, L. M.; Camp, J. D., and Love, J. G.: Symmetrical Cerebral Calcification, Particularly of the Basal Ganglia, Demonstrable Roentgenographically; Calcification of the Finer Cerebral Blood Vessels, Arch. Neurol. & Psychiat. **41:** 921-942 (May) 1939.

2. Pick, A.: Vorläufige Mittheilung zur Pathologie der Tetanie, Neurol. Centralbl. **21:** 578-579 (July 1) 1902.

3. Pick, A.: Weiterer Beitrag zur Pathologie der Tetanie, nebst einer Bemerkung zur Chemie verkalkter Hirngefässe, Neurol. Centralbl. **22:** 754-756 (Aug. 16) 1903.

4. Weimann, Waldemar: Zur Kenntnis der Verkalkung intracerebraler Gefässe, Ztschr. f. d. ges. Neurol. u. Psychiat. **76:** 533-567, 1922.

5. Ostertag, B.: Die an bestimmte Lokalisation gebundenen Konkremente des Zentralnervensystems und ihre Beziehung zur "Verkalkung intracerebraler Gefässe" beigewissen endokrinen Erkrankungen, Virchows Arch. f. path. Anat. **275:** 828-859, 1930.

6. Schnabel: Zur Aetiologie und Histogenese der Verkalkung der kleinen Hirngefässe, Zentralbl. f. allg. Path. u. path. Anat. **33:** 226 (Jan. 1) 1923.

sit down before losing consciousness. With loss of consciousness his head and eyes turned to the right, twitching began in the right side of his face, his whole body became rigid, and he almost invariably fell toward the right. The seizures lasted one or two minutes and were then followed by a short period of mental confusion. Occasionally a minor seizure, characterized by numbness and tingling in the left foot, occurred without progressing through the complete sequence first described. In the opinion of the mother there had been definite slowing of the mental processes and an increase in clumsiness in the previous year or two.

The positive observations on neurologic examination included stammering grade 2 (on a basis of 1 to 4) and dysarthria grade 1. The patient walked with his arms hanging abducted about 6 inches from his sides and swung them less than was usual. His facial expression was somewhat immobile. The speed of movement of his tongue and of the alternate flexion and extension of his fingers (finger-wiggle) was diminished from 25 to 50 per cent. The deep tendon jerks were diminished about 50 per cent but were equal on the two sides. No abnormal reflexes or Chvostek and Trousseau phenomena could be elicited. June 15 the intelligence quotient, as determined by Terman's revision of the Binet-Simon test, was 73 per cent. The test gave an identical result when repeated ten days later after all sedative medication had been stopped.

Fig. 1 (case 3).—Typical symmetrical cerebral calcification.

Roentgenograms of the skull showed numerous small, irregular areas of calcification symmetrically distributed on either side of the midline in the region of the basal ganglions. On the left side, higher up in the frontal lobe and above the usual location of the anterior horn, there was another small, irregular area of calcification similar to the areas present in the basal ganglions. Roentgenograms of the heads of the mother, father and one brother who accompanied the patient were negative. Basal metabolic rates June 23 were plus 4 and minus 23 per cent. On the next day the rates were found to be minus 1 and minus 7 per cent.

Values for Calcium, Phosphorus and Phosphatase (Case 1)

Date	Calcium, Mg. per 100 Cc. of Serum	Phosphorus, Mg. per 100 Cc. of Serum	Phosphatase, Units per 100 Cc. of Serum
June 18, 1936	6.8	7.2	10.4
June 23, 1936	6.3	7.2	
June 25, 1936	6.4	7.2	
June 29, 1936	7.2	6.7	
July 6, 1936	7.0	6.8	
July 14, 1936	8.8	6.6	
July 16, 1936	9.2	6.6	
Oct. 6, 1936	10.0	...	
June 22, 1937	9.8	5.1	

Pneumo-encephalography (performed June 19) gave negative results except for showing the relation of the calcification to the ventricular system. The spinal fluid removed at the time of this procedure was clear, the Kolmer and Kline tests were negative, the Nonne test for globulin was negative, there was one lymphocyte and 30 mg. of protein per hundred cubic centimeters, and the colloidal benzoin curve was 000 002 321 000 000.

June 18 the value for blood calcium was 6.8 mg., that for phosphorus 7.2 mg. and that for phosphatase 10.4 units per hundred cubic centimeters. June 24 the patient began to take, orally, twelve teaspoonfuls of powdered calcium lactate (approximately 24 Gm.) and three tablespoonfuls of cod liver oil (approximately 45 cc.) daily. The dose of calcium lactate was increased to eighteen teaspoonfuls June 27 and to thirty-two teaspoonfuls July 6.

The patient had three major seizures on July 5. At that time the level of serum calcium had not become elevated. By July 16 the serum calcium had risen to 9.2 mg. per hundred cubic centimeters. The values for serum calcium were normal Oct. 6, 1936, and June 22, 1937. When last heard from (December 1937) the patient was much improved; he appeared brighter, was doing well in school and had experienced no convulsions since July 5, 1936. He had continued to take calcium lactate and cod liver oil faithfully. Roentgenograms (made elsewhere) showed no appreciable change in the cerebral calcification.

CASE 2.—A girl was first seen at the clinic in 1925, when she was only 2½ years old, because of seizures of the grand and petit mal type of eleven months' duration. Three weeks before admission a corneal ulcer had developed. The essential finding at this examination was a level of serum calcium of 7.4 mg. per hundred cubic centimeters. A diagnosis of tetany was made and cod liver oil and calcium were advised. The patient improved rapidly and the attacks ceased.

The patient was not seen again at the clinic until Sept. 29, 1937, not until which time did we learn that she had failed to develop properly; she had been unable to go beyond the second grade in school, had been difficult to control at home, had had frequent tantrums, and had not played normally with other children. The convulsions, of which she had two in the year prior to her first visit, had ceased and she had gone three years without a seizure. Her mother, father, two brothers and two sisters were all normal and there was no history of epilepsy or mental disease in other members of the family.

On general examination (she was 14 at this time) the patient was 54 inches (137 cm.) tall and weighed only 72½ pounds (33 Kg.). She was obviously mentally retarded. Her teeth were carious and malformed. The liver was palpable for a distance of 2 cm. below the right costal margin.

Ophthalmologic examination showed the vision of the right eye to be reduced to the ability of counting fingers at about 100 cm.; vision was 6/30 in the left eye. Both corneas were cloudy; the pupils and reflexes were normal. The optic disks appeared normal, but the rest of the fundus was poorly seen because of the corneal opacities. The patient cooperated too poorly for a test of the visual fields to be reliable.

Neurologic examination gave negative results except for showing the mental age of the patient to be 6 years. This represented an intelligence quotient of 42 per cent, classifiable as imbecility. The Chvostek and Trousseau phenomena could not be elicited.

Urinalysis, and a determination of the value for hemoglobin and of the erythrocyte and leukocyte counts, gave negative results. The Kline test of the blood for syphilis was also negative. Oct. 1, 1937, the blood serum contained 6.0 mg. of calcium, 7.2 mg. of phosphorus and 1.8 units of phosphatase; the serum protein was 7.2 Gm. per hundred cubic centimeters.

Roentgenograms of the thorax showed calcification of the hilar lymph nodes. Plain roentgenograms of the skull showed multiple small, irregular areas of calcification distributed symmetrically on either side of the midline in the region of the

basal ganglions. In addition there were smaller, less distinct areas of calcification in the cerebellar region, probably in the dentate nucleus.

Cod liver oil and powdered calcium lactate were prescribed after the method used by Boothby, which method was successfully employed in treating the first patient. Unfortunately, the second patient could not remain at the clinic for treatment and a follow-up could not be obtained.

CASE 3.—An unmarried woman aged 28, examined May 20, 1938, complained of convulsions and of pain and stiffness in many joints and muscles. At the age of 11½ years she had begun having attacks of severe generalized tonic and clonic convulsions and unconsciousness. These attacks had varied in frequency up to twenty a day and had lasted up to one hour each. Her memory had been poor since the age of 13. At 18 she had begun taking phenobarbital daily and the attacks had been less frequent and less severe; however, she had had minor attacks of "blankness" typical of petit mal, with tonic contraction of the left leg and of the right side of the body. These came as often as five times daily.

Three years prior to examination a rash had developed on the dorsal surfaces of the hands. This was diagnosed as pellagra and the patient was given a high vitamin diet, yeast and much milk. The rash then cleared and, during the time this diet was followed, the convulsions and minor attacks were much less frequent. About a year later pain and stiffness developed in many joints and muscles. The patient then underwent treatment for arthritis and had no convulsions for a year. In the six months preceding examination at the clinic she had three generalized convulsions and had up to five minor attacks daily in spite of the continued use of 4½ grains (0.27 Gm.) of phenobarbital daily. Visual acuity had diminished suddenly a few years previously, the approximate date of this being uncertain.

The patient's complexion was sallow and she responded slowly to questions. Her memory was defective and it was impossible to obtain a history which was dependable as to dates. She was found to have a mental age of 9 years 7 months, or an intelligence quotient of 60 per cent. Her knees were swollen, and extension of the legs was slightly limited. The joints were not red or tender. The Chvostek and Trousseau signs were strongly positive. Ophthalmologic examination revealed bilateral immature cataracts of the cortical type. Vision in the right eye was 4/60, in the left eye 3/60.

Roentgenograms of the skull (fig. 1) showed multiple symmetrical areas of cerebral calcification on each side in the region of the basal ganglions and in the subcortical white matter of the frontal, parietal and temporal lobes. Similar shadows were present in both cerebellar hemispheres. The calvarium showed a moderate degree of osteoporosis. Roentgenograms of the right ankle were negative except for showing a moderate degree of osteoporosis.

Chemical examination of the blood after fifteen hours of fasting revealed calcium 4.2 mg., inorganic phosphorus 5.2 mg., magnesium 1.8 mg., cholesterol 277 mg., cholesterol esters 208 mg., lecithin 266 mg., fatty acids 446 mg., total lipoids 723 mg. and sugar 79 mg. per hundred cubic centimeters. The blood sedimentation rate was 26 mm. in one hour. The basal metabolic rate was minus 10 per cent. Treatment of the parathyroid insufficiency was begun on June 1 with dihydrotachysterol (A. T. 10), calcium lactate and cod liver oil. The details are given in figure 2.

Linear extraction of the left lens was performed June 27, and on July 11 linear extraction of the right lens was performed after a preliminary discission three days previously. Following these procedures, vision with the proper refractive correction was 6/6 for the right eye and 6/10 for the left.

As treatment progressed, the pains in the abdomen and muscles decreased, the patient became more alert, and mental improvement was noted. Her appearance and color also showed improvement. July 18 the intelligence quotient was again determined by the same observer and under the same conditions as before, and this time the test showed a mental age of 11 years, or an intelligence quotient of 69 per cent. Under the circumstances, this rise of 9 per cent seemed significant. No generalized convulsions occurred up to July 26, and the attacks of petit mal became less frequent and finally stopped. The patient attempted to discontinue taking the phenobarbital but was apparently afraid to stop it altogether.

In a letter dated March 30, 1939, the patient said she was much improved, was stronger, and had had no recurrence of the convulsions or petit mal seizures. Phenobarbital had been discontinued.

In 1936 Boothby and Davis [7] reviewed the literature on parathyroid insufficiency and in this excellent review called attention to the various complications of chronic parathyroid insufficiency, particularly the development of cataracts, convulsions and trophic changes. They reemphasized the advisability of large doses of dissolved calcium lactate in the treatment of the condition.

In 1934 Holtz, Gissel and Rossmann [8] described the use of dihydrotachysterol, a fraction of irradiated ergosterol, in the treatment of parathyroid insufficiency, and in 1936 Arnold and Blum [9] reported its use in three cases. Recently Albright and others [10] have carefully studied its effect and have found that both it and vitamin D increase the absorption of calcium from the intestine and the excretion of phosphorus in the urine but that the phosphorus-excreting property of dihydrotachysterol is greater than that of viamin D. MacBryde [11] found dihydrotachysterol to be more effective in the treatment of parathyroid insufficiency than cod liver oil and calcium. He, however, as have all writers who have used the drug, warned against the dangers connected with its use; since the effective dosage is very small, there is danger of giving too much of the drug. Large doses given to animals have produced decalcification of the bones and metastatic calcification.

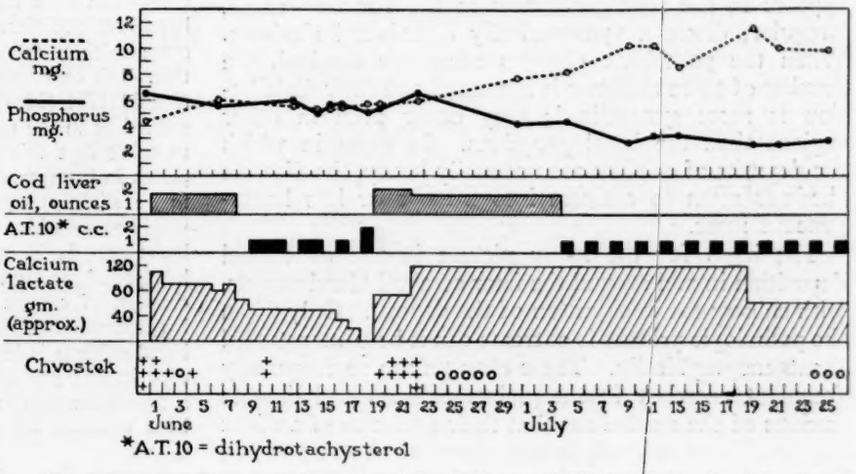


Fig. 2 (case 3).—Treatment of parathyroid insufficiency with dihydrotachysterol, calcium lactate and cod liver oil.

7. Boothby, W. M., and Davis, A. C.: Treatment of Postoperative Parathyroid Insufficiency: An Interpretative Review of the Literature, Arch. Int. Med. **58**: 160-184 (July) 1936.

8. Holz, F.; Gissel, H., and Rossmann, E.: Experimentelle und klinische Studien zur Behandlung der postoperativen Tetanie mit A. T. 10, Deutsche Ztschr. f. Chir. **242**: 521-569 (March 22) 1934.

9. Arnold, C. H., and Blum, Henry: The Control of Hypoparathyroidism, West. J. Surg. **44**: 546-555 (Sept.) 1936.

10. Albright, Fuller; Bloomberg, Esther; Drake, Truman, and Sulkowitch, H. W.: A Comparison of the Effects of A. T. 10 (Dihydrotachysterol) and Vitamin D on Calcium and Phosphorus Metabolism in Hypoparathyroidism, J. Clin. Investigation **17**: 317-329 (May) 1938.

11. MacBryde, C. M.: The Treatment of Parathyroid Tetany with Dihydrotachysterol, J. A. M. A. **111**: 304-307 (July 23) 1938.

In case 3 the parathyroid insufficiency was fairly well controlled with cod liver oil and large doses of calcium lactate (about 60 Gm. daily). Such doses of calcium, however, caused severe diarrhea and it was felt that the greater ease of control accomplished by means of dihydrotachysterol and calcium lactate in smaller doses made the latter procedure worth while. It would seem from the response in this case, however, that dihydrotachysterol elevated the level of blood calcium more easily when combined with fairly large doses of calcium. As was to be expected, the maintenance of a normal level of serum calcium and phosphorus was accomplished more easily after the values for calcium and phosphorus had been elevated to normal.

COMMENT

Symmetrical cerebral calcification, particularly of the basal ganglions, produces a distinctly characteristic roentgenographic picture. Considerable variation in the degree and extent of this form of calcification may occur, corresponding to the stage of the disease at the time the x-ray examination is made. Calcium is always present microscopically long before it can be revealed by roentgenographic methods. This calcification first appears in the roentgenograms in the form of small, irregular, discrete, symmetrically distributed shadows. When the pathologic changes are more marked, the number of these shadows is increased and their distribution is more generalized; they occur even in other regions than the basal ganglions. In cases in which the deposits of calcium are unusually heavy, the discrete shadows seem to coalesce into a more or less homogeneous mass.

The basis for the x-ray picture is one of colloid deposition in and around the finer cerebral blood vessels, with subsequent calcification of the deposit. Only when the pathologic process is extreme can it be demonstrated roentgenographically. These changes are so frequently found at necropsy in the globus pallidus and dentate nucleus of the cerebellum that their presence to a slight degree, if not normal, is not unexpected. A marked increase in the degree and extent of the vascular process is likely to occur at any age, in either sex and in response to many diseases, not all of which need produce neurologic symptoms. The pathologic process has been most extensive and therefore most likely to be detected roentgenographically in parathyroid insufficiency and other diseases characterized by mental deterioration with or without convulsive seizures or motor symptoms referable to the extrapyramidal system.

Since adequate treatment of parathyroid insufficiency improves the mental condition of the patient and stops the convulsions without producing roentgenographically detectable changes in the cerebral calcification, we believe that the cerebral calcification itself is not responsible for the mental deterioration or the convulsive phenomena. Evidently, parathyroid insufficiency is only one of several diseases producing a disturbance of cerebral metabolism which results in the deposition of colloid material in and about the finer cerebral vessels. This deposit of colloid has a tendency to take up calcium even when parathyroid insufficiency does not exist. Thus it seems to us that symmetrical cerebral calcification, mental deterioration and convulsions are all concomitant cerebral symptoms of hypoparathyroidism, and one finding does not stand in etiologic relationship to the other.

We believe that the association of tetany with symmetrical cerebral calcification should be emphasized. Three of our seven patients had definite parathyroid insufficiency. In retrospect, another case (not reported here) may well have been one of this disease, although the diagnosis was never established. Seven cases of tetany have been reported in which postmortem examination revealed extensive cerebral calcification.

It has occurred to us that some of the cases of marked cerebral calcification associated with mental deterioration and convulsive seizures reported in the literature may have included a parathyroid insufficiency which was not detected. We believe, therefore, that the skulls of all patients with chronic parathyroid insufficiency should be examined roentgenographically. In addition, in all cases in which roentgenograms show symmetrical cerebral calcification, a determination of the serum calcium should be made in an effort to establish or exclude parathyroid insufficiency.

ABSTRACT OF DISCUSSION

DR. FULLER ALBRIGHT, Boston: I have one more case as further evidence that calcification of the brain in hypoparathyroidism does occur. A young boy who had an idiopathic hypoparathyroidism was seen a number of years ago and these same calcium deposits were demonstrated by x-ray examination. His case history appears in the *Annals of Internal Medicine* **12**:1751 (May) 1939. The same type of pathologic change existed as in the case of Drs. Eaton and Haines. I would like to think that this tendency for calcium to occur in abnormal places in hypoparathyroidism indicates a tendency for the blood to be slightly supersaturated with calcium phosphate. That would agree with my conception of the action of the parathyroid hormone. It is my belief that the blood calcium is low in hypoparathyroidism because the blood phosphate is high. This concept, of course, implies a tendency to supersaturation. In hyperparathyroidism, on the contrary, it is my belief that the blood calcium is high because the phosphate is low. This concept implies hyposaturation. If these concepts are correct and a supersaturation in hypoparathyroidism does exist, there should be a tendency for calcium to be deposited in abnormal places. Therefore I should like to think that these changes are due to supersaturation rather than to the colloid formation.

DR. PETER BASSOE, Chicago: As I see it there are four problems involved in this presentation: the mechanism of calcification, the effect of such calcification on the function of the brain, the question of the significance of the symmetry and the question of the role of the parathyroid. Cerebral calcification is of a kind which has aptly been called "endarteritis calcificans cerebri." The calcification is preceded by a colloid or hyaline degeneration of arterioles and capillaries. This in turn is thought to be preceded by vascular narrowing from toxic or other causes, with resulting oxygen deficiency. Kaufmann showed experimentally that arterial calcification may set in three days after carbon monoxide poisoning. In most cases previously reported only one side of the brain has been affected. By far the commonest clinical picture is that of epilepsy, called "cerebral calcification epilepsy" by Penfield. Sometimes brain tumor is simulated, as in a case described by Hassin and myself in the *Archives of Neurology and Psychiatry* in 1921. The histologic appearances are identical with those described by Drs. Eaton, Camp and Love in the May issue of the *Archives of Neurology and Psychiatry*. Our patient began having right-sided convulsions at the age of 30 years and later developed some aphasia, right-sided weakness and changes in reflexes which led to a diagnosis of brain tumor. Three operations were performed and each time a hard mass was felt so deep down that removal was impossible. The hemiplegia gradually became more complete; the patient failed mentally and died eleven years after the onset and four years after the last operation. Necropsy revealed a large calcified area in the left hemisphere, involving the basal ganglions and centrum semi-

ovale. Neither in this case nor in most others in the literature are data offered from which conclusions might be drawn as to the parathyroid function. All I can say is that in the calcifying endarteritis the process appears to be the same whether unilateral or bilateral. [The histologic changes in this case were demonstrated by five lantern slides.]

DR. CYRIL M. MACBRYDE, St. Louis: My impression that this new sterol derivative is the best thing available at present in the treatment of tetany is being borne out in a larger number of cases. At present I have twelve cases of hypoparathyroidism under control. They are chronic tetany cases, all of them treated with dihydrotachysterol and small doses of calcium by mouth. Nine of these followed thyroid operations, one followed removal of a parathyroid tumor and two of them were idiopathic cases. Two of these patients, one the idiopathic patient and one having hypoparathyroidism following thyroid operation, had epileptiform convulsions over a number of years before treatment with dihydrotachysterol. I went back over our roentgenograms to see whether I could observe any calcification, and I cannot see in these two cases any evidence of cerebral calcification in the roentgenograms. Both of these patients had signs of increased intracranial pressure, with definite papilledema. In one the spinal fluid pressure was measured and found to be over twice normal. All of these signs disappeared after proper treatment with dihydrotachysterol. The papilledema and convulsive attacks in these two patients disappeared and never returned. I want to comment about one observation shown on a slide here today. I wonder whether perhaps the authors didn't expect too much of too small a dose of dihydrotachysterol. As I remember, one patient was given 8 cc. over a period of seven days and there was no marked change in the blood calcium. I have found that it takes more dihydrotachysterol than that and a longer period of time to get a definite effect. There is a lag in the effect. I ordinarily give a new patient from 14 to 20 cc. in the first week, and a maximum blood calcium rise usually doesn't occur until about ten days after starting the dihydrotachysterol. As soon as the blood calcium begins to approach normal one should reduce the dose to 0.5 or 0.3 cc. a day. The maintenance dose is between 1 cc. and 0.3 cc. a day. I have found with the use of dihydrotachysterol that very large doses of calcium are absolutely unnecessary. Twenty grams or more daily of a calcium salt usually makes a patient uncomfortable. I find that patients are usually nauseated and have various gastrointestinal upsets with large doses of calcium. Usually 10 Gm. of calcium lactate a day, with from 0.3 to 1 cc. a day of the dihydrotachysterol is enough for a maintenance dose and will keep the blood calcium at a normal level indefinitely. The advantages of this drug, I think, are considerable. Dihydrotachysterol certainly raises the blood calcium better than vitamin D. It seems to reduce blood phosphorus better than vitamin D preparations, and it has a much more prolonged action than parathyroid injections, which must be repeated at least every twenty-four hours.

DR. SAMUEL F. HAINES, Rochester, Minn.: We agree with Dr. Albright and Dr. MacBryde that dihydrotachysterol offers the simplest treatment for the patient in case of parathyroid tetany. Although we still feel we can control tetany in the majority of the cases by the administration of large doses of calcium lactate dissolved in hot water and of some form of vitamin D, it is still easier to control it when dihydrotachysterol is used in small doses. In some cases in which diarrhea followed administration of calcium lactate we have found we have been able to control the diarrhea by the administration of dilute hydrochloric acid. In some of those cases we have found achlorhydria present. The case presented here was the first case in which we used dihydrotachysterol and the small dose was used because we were feeling our way. We know now, from further experience, that larger doses are necessary, as Dr. MacBryde has noted. It is of interest that since these cases have been observed we have taken roentgenograms of the skulls of several patients with severe chronic parathyroid insufficiency and have not found abnormal deposits of calcium.

DR. L. MCKENDREE EATON, Rochester, Minn.: There are many controversial points concerning symmetrical cerebral calcification which we could not discuss because of limited time. It has been suggested that the cerebral changes were the cause of the convulsive seizures and mental dulling. Our experience leads us to a different opinion. Roentgenograms of the skull of the first patient made after eighteen months of treatment and relief from symptoms showed no change in the density or extent of the calcium deposits in the brain. Therefore the calcium deposits per se cannot have produced the symptoms. The latter must have been due to the disturbed calcium metabolism. Dr. Bassoe suggested that the symmetry of the lesions might not be important since a similar histologic change had been found distributed asymmetrically in the brain in other cases. However, I wonder whether the symmetrical lesions are not the result of generalized metabolic disturbances while the localized asymmetrical lesions represent a localized disease process primary in the brain.

Clinical Notes, Suggestions and New Instruments

BACILLARY DYSENTERY RESULTING FROM AN ACCIDENTAL LABORATORY INFECTION

ORAM C. WOOLPERT, M.D.; HOMER F. MARSH, M.S., AND OWEN F. YAW, M.D., COLUMBUS, OHIO

Although dysentery due to Shigella dysenteriae (Shiga) has been diagnosed specifically since Shiga's[1] identification of the etiologic agent in 1897 and the disease is encountered not infrequently the world over, we have been unable to find any record of an accidental laboratory infection caused by this organism. Lippincott[2] recorded a mild case of Flexner's dysentery in a technician who had accidentally drawn a suspension of Shigella paradysenteriae (Flexner) into her mouth while doing an agglutination test on a recently isolated strain.

Shiga dysentery is ordinarily transmitted by means of contaminated food or water; it occurs sporadically or in small epidemics, as among army populations; the primary source of the bacteria is commonly a carrier or an active case. The case reported here is deemed of interest not simply because it resulted from a laboratory infection but particularly because of the unusual opportunity afforded us to work out the epidemiology and bacteriology in association with the clinical studies. In short, it presents many of the features of a well controlled laboratory experiment in which man was the unfortunate experimental animal.

REPORT OF CASE

F. G., a white man aged 23, a graduate student in the Department of Bacteriology, was seen by Dr. James C. Vanneter of the university staff Dec. 3, 1938, and was admitted late that day to the medical service of University Hospital with the clinical picture of acute dysentery. He was transferred to the isolation service the next day.

The patient was a native and resident of Brooklyn but had lived in Columbus during the autumn quarter of the school year. The past history was uneventful. He had enjoyed good health and was not subject to gastrointestinal disturbances.

On the afternoon of November 30 he was injecting a rabbit intravenously with a living suspension of Shigella dysenteriae (Shiga) for purposes of immunization. He had difficulty in getting the needle into the ear vein and while exerting pressure on the plunger of the syringe he inadvertently withdrew the needle sufficiently to expose the tip, consequently spraying some of the suspension of bacteria into his own face. He was aware of getting some of the material into his eyes but did not think that any was introduced directly into his mouth. He immediately washed his face and hands well in tap water but used no soap or disinfectant. The accident was not reported at the time to any member of the departmental teaching staff.

From the Departments of Bacteriology and Medicine (Isolation Service), the Ohio State University College of Medicine.

1. Shiga, Kiyoshi: Ueber den Erreger der Dysenterie in Japan, Centralbl.f.Bakt., I Abt. **23**: 599 (April) 1898.
2. Lippincott, L. S.: A Case of Bacillary Dysentery Contracted in the Laboratory, J. A. M. A. **85**: 901 (Sept. 19) 1925.

This was to have been the last inoculation given the rabbit, so the student did no further work with the animal or the Shigella organisms. Almost exactly forty-eight hours after the laboratory accident he suffered an acute onset of diarrhea, accompanied by abdominal pains, headache, general malaise and what he thought was a slight fever.

On admission the temperature was 100.8 F., the pulse rate was 102 and the respiratory rate was 24. The patient was well developed and well nourished. He appeared very weak and somewhat dehydrated. There was a generalized spasm of abdominal pain with tenderness and moderate rigidity in the left lower quadrant. Stools were so frequent that the patient could hardly be kept off the bed pan long enough for an examination.

The stools were watery and appeared to consist of blood-streaked pus and mucus, without fecal material. Microscopic examination of the stools confirmed the presence of pus and blood and failed to reveal any amebas. There were from 50 to 75 leukocytes, mostly polymorphonuclear, and from 2 to 5 erythrocytes per high power field. The blood count was red blood cells 7,000,000, hemoglobin 112 per cent (Sahli), white blood cells 11,050, polymorphonuclear leukocytes 65 per cent with 36 per cent adult and 29 per cent juvenile forms, lymphocytes 30 per cent, monocytes 5 per cent. The urine was acid in reaction and contained an occasional white blood cell and a few granular casts.

On the basis of a history of exposure and the presenting symptoms and examinations, a tentative diagnosis of Shiga bacillary dysentery was made.

Specific treatment was instituted as soon as possible by the administration of 100 cc. of polyvalent bacillary dysentery antiserum on the day following admission. Preliminary desensitization proved to be necessary, and for this reason the serum was given intramuscularly. Two days later an additional 100 cc. of serum from a different biological house was obtained. Again the patient appeared sensitive by cutaneous test, but most of the serum was given intravenously after desensitization.

For the first few days morphine sulfate one-fourth grain (0.015 Gm.) was given frequently to control pain; later codeine was substituted. Other treatment consisted of atropine sulfate 1/150 grain (0.0004 Gm.) as needed to allay abdominal cramps; saturated solution of sodium sulfate 6 cc. by mouth, at first every two hours, later at four, six and then twelve hour intervals, and sodium bicarbonate 15 grains (1 Gm.) every four hours until the urine was rendered alkaline. On admission the patient was given a 700 cc. sodium bicarbonate enema. Later during convalescence an enema containing 1 grain (0.06 Gm.) of potassium permanganate in 500 cc. of 0.85 per cent solution of sodium chloride was used once or twice daily. Fortunately the patient was able to take large amounts of fluids by mouth, often 5,000 cc. or more daily, so that the intravenous administration of fluids became unnecessary. A moderate serum sickness which developed was treated in the usual manner.

The course of the disease was one of gradual improvement. The temperature, which reached 103.2 F. on the second hospital day, probably augmented by a reaction to the serum given, fell to normal by the tenth day. The stools continued to be very frequent for about two weeks, at the end of which time fecal matter first began to appear. The blood erythrocytes fell to a low of 3,510,000 by the fifth day as body fluids were restored and slowly rose to almost 5,000,000 when the patient was discharged on the twenty-fifth hospital day. The blood leukocytes correspondingly fell to approximately 7,000 and remained near that level.

BACTERIOLOGY

History of Infecting Strain.—The history of the organism with which the patient worked is of particular interest because it relates his infection to a recent outbreak of severe dysentery.

During the summer of 1938 an epidemic of bacillary dysentery occurred in the neighborhood of Owosso, Mich., involving approximately 150 cases, of which not less than fifty were severe. Of seven fatalities, all were among children. Shigella paradysenteriae (Sonne) was isolated from some of the patients, but Shigella dysenteriae (Shiga) was proved to be the responsible agent in sixteen cases, including four that were fatal.

One of us (H. F. M.), engaged in research in intestinal bacteriology, requested through the Michigan Department of Health several cultures of the Shigella organism isolated in the Michigan epidemic. Four cultures were kindly supplied.[3] One of these cultures (derived from a non-fatal case) was being used by the student at the time of his accident. The culture was not more than three months removed from the human case; it had been in semisolid agar for approximately two months of that time and had been transferred altogether about twelve times since primary isolation.

Isolation and Identification of Patient's Strain.—On the first day of hospitalization a stool specimen was streaked out on two eosin-methylene blue plates and two Endo-agar plates. At the end of a twenty-four hour incubation period, the plates showed an almost pure culture of a non-lactose fermenting organism which appeared as a gram negative rod on staining. Cultures were made from these plates into plain broth and into Russell's double sugar agar slants. At the end of six hours' incubation there was sufficient growth to carry out a motility test; this showed that the bacteria were non-motile. As soon as the growth was sufficient in the Russell slants it was seen that the organism produced acid only in the butt of the tube, with no change on the slope. These reactions placed it in the Shigella genus.

From the broth cultures transfers were made to the following mediums: lactose, dextrose, sucrose, mannite, levulose, raffinose, xylose, dulcitol and rhamnose broth; tryptophan broth; nitrate broth; Koser-Simmond's citrate agar slants; litmus milk, and gelatin.

The broths were observed at twenty-four and forty-eight hours, and the following changes were recorded: acid without gas in dextrose, levulose and raffinose, and no change in the other carbohydrates; no growth on the citrate agar; a slight production of acid in the milk, changing to a neutral reaction and finally to a very slightly alkaline reaction. The tests for indole and the reduction of nitrates were negative at forty-eight and ninety-six hours. Gelatin was not liquefied in two weeks.

These cultural changes are those characteristic of Shigella dysenteriae (Shiga).

Since the first plate cultures of the patient's stool were apparently almost pure and we had in mind the strong possibility of Shigella dysenteriae (Shiga) infection, it was thought worth while to attempt serologic identification of the patient's strain by using, as an antigen, the growth taken directly from one of the original Endo plates. For the test antiserum, we had at our disposal the antiserum which the student had been preparing in rabbits. Not only, then, did this serum represent a known antiserum for Shigella dysenteriae (Shiga) but also it had been prepared against the very strain of these organisms to which the patient had been exposed. Appropriate agglutination tests were set up, therefore, the patient's culture and a stock culture of Shigella paradysenteriae (Flexner) being used against the rabbit serum. The tubes were incubated for an hour and a half at 45 C. (113 F.) at the end of which time agglutination was found to be complete to a titer of 1:320 in the tubes containing the patient's strain, whereas there was no agglutination of the Flexner strain. The tubes were refrigerated overnight and on rereading the patient's strain was seen to be agglutinated to a titer of 1:1,280, with no agglutination of the Flexner organism. Thus a presumptive serologic identification of the recovered strain was established within twenty-four hours. Later agglutination tests with pure cultures of the patients strain confirmed the earlier serologic and cultural reactions, identifying the organism as Shigella dysenteriae (Shiga).

On the tenth day of hospitalization another stool culture was made as before. Again the plates revealed an almost pure culture of a non-lactose fermenting bacterium which was identified as Shigella dysenteriae (Shiga).

Stool cultures were positive again on the twentieth day, but at this time only about half of the colonies were Shigella. No Shigella organisms could be recovered from cultures taken

3. Dr. C. C. Young, director, Mr. W. W. Ferguson, senior bacteriologist, and Dr. F. C. Forsbeck, epidemiologist of the Michigan State Department of Health, supplied these cultures as well as salient information concerning the Michigan outbreak.

on the twenty-fourth day, and two cultures taken subsequent to the patient's release from the hospital were likewise negative.

SEROLOGIC STUDIES

Specimens of the patient's serum were obtained on the third and nineteenth days of hospitalization and on the tenth day after his discharge, or thirty-five days after the onset of illness. These were set up for agglutination tests against the following organisms: a culture from the patient, the original culture of Shigella dysenteriae (Shiga) given him for his work, a department stock culture of the same organism and a stock culture of Shigella paradysenteriae (Flexner). The results of these tests were as follows: There was no agglutination of the Flexner organism in any of the serums; there was no agglutination of the other cultures run against the first and second specimens of the patient's serum; agglutination was complete at 1:80 and partial at 1:160 in the tubes containing the third serum specimen run against the patient's strain, as well as the experimental culture used by the patient and the stock strain of Shigella dysenteriae (Shiga). It is evident, therefore, that the patient originally had no agglutinins for the Shigella organisms but that a specific serologic immunity developed during the course of his infection.

COMMENT

When we first saw this student we were hesitant to ascribe his infection to laboratory exposure. We had never heard of a laboratory infection due to Shigella dysenteriae (Shiga) and we erroneously assumed that he had been working with an old stock culture of low virulence. On the basis of the evidence presented, however, we feel that there can be no reasonable doubt concerning the source of the infecting organism. It is significant that the strain had been isolated only three months earlier from an epidemic having a high fatality rate and that it had been passed through only a few transfers on artificial mediums. It cannot be said with certainty whether the student got some of the bacteria directly into his mouth, whether they gained access through the nasal passages or whether they were carried into his mouth from the lips or hands when he ate dinner shortly after the accident. In any case, infection must have been closely associated with the laboratory episode since he did no further work with these bacteria. It is pertinent to note also that the student took all his meals at a restaurant which is well attended by university people and that no other cases of dysentery were reported.

The incubation period of forty-eight hours is compatible with the range usually given of from one to three days.

The antibody response represented by an agglutinin titer of 1:80 is of the order reported for infections due to the Shiga dysentery bacillus. It is of interest that, although the patient was given 200 cc. of polyvalent dysentery antiserum, there was no immediate effect on his titer of serum agglutinins as a result of this passive immunization. Since by actual test we found the agglutinin titer of the commercial serum to be very low, this fact is understandable. It is evident that the agglutinins later demonstrable in the patient's serum must have been developed actively in his own body.

SUMMARY

1. A case of bacillary dysentery due to Shigella dysenteriae (Shiga) resulted from accidental laboratory infection. So far as we have been able to learn, no similar case has been recorded previously.

2. The infecting strain had been recently isolated from an epidemic having an unusually high case fatality rate.

3. Following a definitely determinable exposure, the incubation period in the instance reported was forty-eight hours.

4. A specific laboratory diagnosis was established within twenty-four hours. The careful bacteriologic and serologic studies carried out prove that the strain of Shiga dysentery bacillus recovered from the patient was identical with the laboratory strain to which he was exposed.

5. Although Shigella dysenteriae (Shiga) is universally accepted, on the basis of ample evidence, as the specific etiologic agent for one type of bacillary dysentery, we believe that the data presented here afford an interesting confirmation of that relationship.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

HOWARD A. CARTER, Secretary.

BURDICK QA-250 ULTRAVIOLET LAMP ACCEPTABLE

Manufacturer: The Burdick Corporation, Milton, Wis.

The Burdick QA-250 Ultraviolet Lamp is the hot cathode, mercury quartz type, recommended for use only by the physician or under his direction by prescription. The base supports a control unit containing the transformer, relay and other electrical parts for starting and operating the burner. An aluminum reflector at the top of the stand concentrates the radiation from a burner to an area approximately 6 feet long and 2 feet wide.

Fig. 1.—Burdick QA-250 Ultraviolet Lamp.

The reflector may be adjusted from heights of about 40 to 70 inches and turned in various angles in the horizontal or vertical axes. The lamp must be connected to a 25 or 60 cycle alternating current and requires an input of 250 watts.

The burner is air cooled and operates at a high vapor pressure and relatively high temperature. At a distance of 30 inches from the burner a first degree erythema may be produced on the average skin within two minutes.

The firm submitted a report from a dependable laboratory giving information on the lamps with regard to (*a*) the total radiation from the lamps, (*b*) the spectral distribution of energy in the ultraviolet (and visible) region and (*c*) the division of total energy among the three regions ultraviolet, visible and infra-red. In making the tests for the total radiation, the mercury lamp was mounted with the tube vertical, the axis of the tube 30 inches from the receiving surfaces, and the line from the receivers to the center of the tube perpendicular to the rim of the reflecting shield. In measuring the range of the ultraviolet spectrum, a Leiss quartz spectrometer was used.

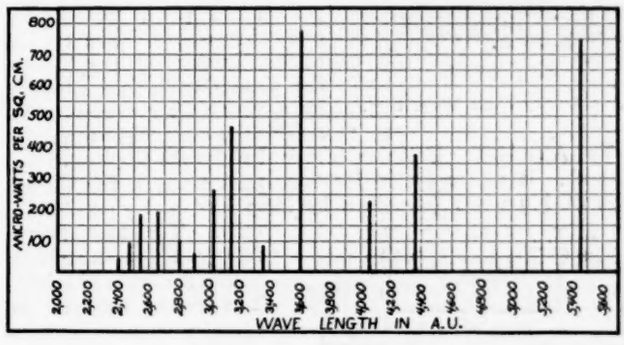


Fig. 2.—Spectral energy distribution.

Radiation in Individual Lines

Wavelength, Angstroms	Microwatts per Square Centimeter at 30 Inches
2,399	44
2,483	84
2,536	176
2,652	181
2,803	99
2,894	57
3,022	264
3,132	462
3,342	70
3,650, 54, 62	770
4,047	233
4,358	387
5,461 (5,770-5,790)	704
10,140 (others nearby)	348

The distribution of energy in the three general regions (ultraviolet, visible and infra-red) was found to be as follows: In the visible the important lines are at wavelengths 4,358,

5,461 and 5,770-5,790. The yellow and green together gave radiation at 934 microwatts per square centimeter, the deep blue at 501. Therefore, in the visible spectrum the lamp radiates at 1,435 microwatts per square centimeter in the ultraviolet (including the line at 4,047) at 2,800, and in the infra-red (including the lines at and near 10,140 angstroms, which themselves amount to 400 units) 7,900 microwatts per square centimeter. Of this 7,900 units, about 7,500 is beyond 14,000 angstroms and represents the thermal radiation of the hot quartz. The results are all summarized in the accompanying table and in figure 2.

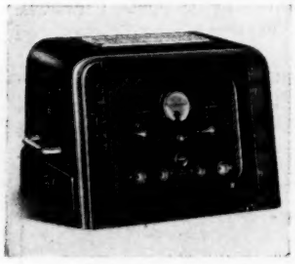
The unit was submitted by the Council to a qualified physician for clinical usage, and he reported that it functioned adequately.

On the basis of the evidence provided in the foregoing report, the Council on Physical Therapy voted to accept the Burdick QA-250 Ultraviolet Lamp for inclusion in the Council's list of accepted devices.

ALOE UTILITY SHORT WAVE UNIT ACCEPTABLE

Manufacturer: A. S. Aloe Company, 1819 Olive Street, St. Louis.

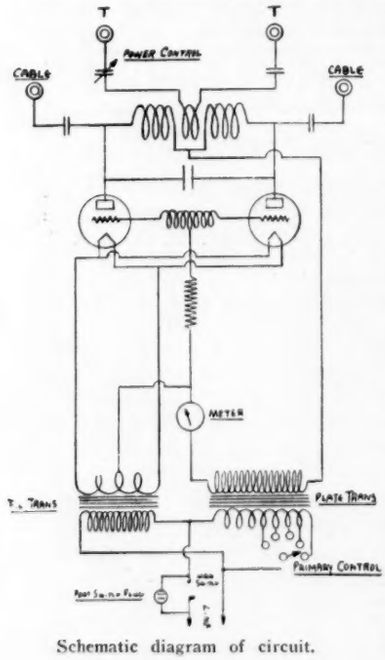
The Aloe Utility Short Wave Unit is recommended for medical and minor surgical diathermy. It is a semiportable model with an available cabinet or chrome stand to serve as a base. Condenser pad electrodes and an induction coil are standard accessories. Cuff electrodes, surgical instruments and a foot switch are optional equipment.



Aloe Utility Short Wave Unit.

Providing a 12 meter wavelength, the unit utilizes two tubes in a self-rectifying, push-pull, tuned plate, tuned grid oscillating circuit. The output circuit, inductively coupled to the plate circuit, is controlled by a variable air condenser in series with one patient terminal.

The Aloe Utility Unit was examined under the auspices of the Council. It was operated for two hours under a full output load of 160 watts (measured by lamp load and photoelectric cell). The final transformer temperature was within the limits of safety. The power required to operate the machine was approximately 550 watts and the electromotive force across the line was 116 volts.



Schematic diagram of circuit.

Evidence was submitted by the firm concerning the deep heat produced by the unit within the body tissues. Tests were run with cuff and coil technics. A stiff resilient metal was used in the cuffs so that they embraced the thigh with a springlike action. These were 2⅜ by 25 inches (upper cuff) and 2⅜ by 18½ inches (lower cuff). The metal strip in the electrodes was approximately 1½ inches wide. The average distance between the cuffs was 6½ inches (right) and 6⅓ inches (left). The average spacing was five-eighths inch (right) and three-fourths inch (left). The room temperature was about 72 F. and the humidity about 54 per cent. All applications were given for twenty minutes and the power was applied up to the patient's heat tolerance.

When the inductance coil tests were run, there was a distance between the coils of about 1 inch and the coil was separated from the skin by about one-fourth inch spacing. The average thigh circumference was approximately 20⅝ inches. The room temperature stayed around 69.5 F. while the humidity was approximately 54 per cent.

Average Temperatures (F.) of Six Observations, Cuff Technic

Deep Muscle		Rectal	
Initial	Final	Initial	Final
98.2	105.8	99.6	99.5

Average Temperatures (F.) of Six Observations, Coil Technic

Deep Muscle		Rectal	
Initial	Final	Initial	Final
96.4	105.6	98.7	98.9

The unit was put on trial in a clinic acceptable to the Council and it was reported to give satisfactory clinical service.

In view of the foregoing report, the Council on Physical Therapy voted to include the Aloe Utility Short Wave Unit in the Council's list of accepted devices.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. PAUL NICHOLAS LEECH, Secretary.

CHORIONIC GONADOTROPIN

The numerous names which have been given to the gonadotropic substance excreted in the urine of pregnant women have led to considerable confusion and ambiguity for many years. The Council considered it advisable, therefore, to adopt a term which would describe the origin and action of this substance and thus avoid the use of misleading names.

When it was discovered by Zondek and Aschheim in 1928 that the urine of pregnant women contained a gonadotropic substance, it was thought that this substance was elaborated by the anterior lobe of the pituitary. The names by which this substance were then designated reflected this view, e. g. prolan, antuitrin, antophysin, praehormon. Several years later it was conclusively demonstrated that the gonadotropic action of pregnancy urine differed significantly from that of the anterior lobe in certain physiologic responses. From this time investigators have commonly referred to this urinary gonadotrope as the anterior pituitary-like substance. Other names by which this substance is known are P. U., A. P. L., pregnancy urine hormone and prolan B. Fluhmann suggested in 1934, on the basis of his studies and those of others, the name "chorionic ovary-stimulating hormone," since it was definitely shown that this substance was elaborated by chorionic tissue, such as the placenta, hydatid mole, chorio-epithelioma and certain embryonal teratomas.

In 1937 the Council voted to adopt as the designation of this substance the term "chorionic gonadotropin," which signifies its origin from chorionic tissue and its gonadotropic action. This action was not published at that time. At the League of Nations Third International Conference on the Standardization of Hormones in 1938 it was agreed to adopt "the term 'gonadotrop(h)in' for reference to principles with gonadoptrophic action, with the addition, in each case, of a suitable adjective or descriptive phrase, to indicate the source of origin of the particular principle to which reference is made." This is in close agreement with the action of the Council, and it appears, therefore, that the term "chorionic gonadotropin" is an international one. It is hoped that the use of this term will soon displace that of the various other names which have been attached to the substance.

MEDICAL EDUCATION IN THE UNITED STATES AND CANADA

THIRTY-NINTH ANNUAL PRESENTATION OF EDUCATIONAL DATA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

In its 1939 compilation of educational data, the Council on Medical Education and Hospitals has endeavored to present in statistical form or editorial comment facts regarding its major activities. Information regarding the approved undergraduate medical schools for the academic year 1938-1939 is given in the customary manner, including a tabulation of the number of citizens of the United States enrolled in faculties of medicine abroad. The second and more detailed report on extension courses for practicing physicians appears in this issue. The requirements and personnel of approved examining boards in specialties is an added feature this year. Also included are revised lists of hospitals approved by the Council for internships and residencies and fellowships. The Essentials for Approved Examining Boards in Specialties and the Essentials of Approved Residencies and Fellowships are reprinted as recently revised. Reproduced also are some of the other Essentials promulgated by the Council, namely the Essentials of an Acceptable Medical School and the Essentials in a Hospital Approved for Training Interns.

The Council in February 1937 adopted a resolution that, effective July 1, 1939, it would publish separately a list of schools which teach only the basic medical sciences. They so appear in this issue and the statistics therefor cover sixty-seven approved medical schools [1] in the United States and nine in Canada, and ten [2] recognized schools of the basic medical sciences in the United States and one in Canada. Included also are 734 hospitals approved for internships and 518 hospitals offering approved residencies and fellowships in specialties.

The factual study of extension courses for practitioners covers thirty-six states and the District of Columbia visited since October 1937 and brings up to date the preliminary report presented last year.[3]

All these data are based on official reports. Acknowledgment is extended to the officials of the institutions and agencies named and others for their cordial cooperation in supplying the material submitted in this presentation and for other data furnished throughout the year to the office of the Council and the members of its staff on inspection or visitation, enabling the Council to maintain its medical student and hospital registers efficiently and to carry on its activities as outlined by the House of Delegates of the American Medical Association.

PRELIMINARY EDUCATION

Although many schools have additional requirements, the following statement indicates the minimum of preliminary education which is acceptable to the Council:

The minimum requirement for admission to approved medical schools is two years of college training which include English, theoretical and practical courses in physics, biology and general and organic chemistry. Three years or more in college is, however, recommended.

Since it cannot in general be assumed that all who have satisfied these requirements merely in terms of hourly credits are fitted for the study of medicine, it is desirable that qualitative standards for admission should be imposed.

As a rule candidates should have received their preliminary education in institutions approved by accrediting agencies acceptable to the Council. Exception to this rule may be made in the case of applicants who have demonstrated superior ability. For the convenience of admitting officers the Council has prepared a list of colleges of arts and sciences approved by national and regional educational associations.

Admission to approved medical schools may also be by examination under the following conditions:

(*a*) Candidates who have completed two years of collegiate instruction and present evidence of general scholarship of high order, but who lack credits in not more than two of the required subjects, may be admitted on passing examinations in these subjects.

(*b*) Candidates who have completed three years of collegiate instruction and present evidence of having accomplished work of distinction in one or more fields of learning, but who lack credit in any or all of the required subjects, may be admitted on passing examinations in these subjects.

TABLE 1.—*Preliminary Requirements*

Requirement	No. of Schools 1938-1939	1939-1940
Degree	5	5
Years		
Four	1	1
Three*	5	5
Three	45	55
Two and one-half	2	..
Two	19	11
Totals	77	77

* Baccalaureate degree conferred in absentia at end of first medical year.

The standardizing agencies acceptable to the Council are:
Association of American Universities.
North Central Association of Colleges and Secondary Schools.
Middle States Association of Colleges and Secondary Schools.
New England Association of Colleges and Secondary Schools.
Southern Association of Colleges and Secondary Schools.
Northwest Association of Secondary and Higher Schools.

For the year 1938-1939 the Council's compilation of colleges of arts and sciences approved by these bodies numbered 791, distributed as follows:

Association of American Universities	269
North Central	234
Southern	238
Middle States	134
Northwest	69
New England	49

Of those recognized by the Association of American Universities, all but seventeen are approved also by their district agency. In the various groups this dual approval of 269 institutions is distributed as indicated below:

North Central	101
Southern	58
Middle States	44
New England	31
Northwest	18

The five regional associations of colleges referred to cover among them the entire United States with the

(Continued on page 760)

1. Includes one school on probation. See footnote to table 2, page 759.
2. Includes two on probation. See footnotes to table 3, page 760.
3. J. A. M. A. **111:** 801 (Aug. 27) 1938.

TABLE 2.—*Statistics of Recognized Medical Schools in the United States and Canada*

	Name and Location of School	1939-1940 Preliminary Requirement by Years	Length of Course, Academic Years	Students by Classes, Session 1938-1939						Graduates Since July 1, 1938	Session 1939-1940		Applications for Admission to the 1st Year Will Be Received Until	Executive Officer	
				1st Year	2d Year	3d Year	4th Year	5th Year or Intern Year	Totals		Begins 1939	Ends 1940			
	ARKANSAS														
1	*University of Arkansas School of Medicine, Little Rock	2	4	77	69	64	72	...	282	72	Sept. 27	June 4	Sept.	Stuart P. Cromer, M.D., Dean	1
	CALIFORNIA														
2	University of California Medical School, Berkeley-San Francisco	3	5	64	62	59	60	64‡	245	63	Aug. 28	May 25	Jan.	Langley Porter, M.D., Dean	2
3	College of Medical Evangelists, Loma Linda-Los Angeles	2	5	77	85	85	93	108‡	340	109	Sept. 4	June 9	May	E. H. Risley, M.D., Dean, Loma Linda; W. E. Macpherson, M.D., Assoc. Dean, Los Angeles	3
4	University of Southern California School of Medicine, Los Angeles	3	5	54	53	48	44	43‡	199	44	Sept. 18	June 8	March	Paul S. McKibben, Ph.D., Dean	4
5	Stanford University School of Medicine, San Francisco	3	5	62	61	57	57	57‡	237	57	Sept. 26#	June 16	March	Loren Roscoe Chandler, M.D., Dean	5
	COLORADO														
6	University of Colorado School of Medicine, Denver	3	4	57	52	51	49	...	209	49	Sept. 23#	June 10	April	Maurice H. Rees, M.D., Dean	6
	CONNECTICUT														
7	Yale University School of Medicine, New Haven	3	4	54	59	44	43	...	200	43	Sept. 25	June 12	March	Stanhope Bayne-Jones, M.D., Dean	7
	DISTRICT OF COLUMBIA														
8	Georgetown University School of Medicine, Washington	3	4	97	86	80	73	...	336	73	Sept. 18	June 10	March	David V. McCauley, S.J., Ph.D., Dean	8
9	George Washington University School of Medicine, Washington	2	4	75	60	52	56	...	243	56	Sept. 25	June 12	July	Walter A. Bloedorn, M.D., Dean	9
10	Howard University College of Medicine, Washington	2	4	39	27	33	30	...	129	30	Sept. 25	June 7	Sept.	Numa P. G. Adams, M.D., Dean	10
	GEORGIA														
11	Emory University School of Medicine, Atlanta	3	4	60	51	50	47	...	208	47	Sept. 25	June 10	March	Russell H. Oppenheimer, M.D., Dean	11
12	University of Georgia School of Medicine, Augusta	3	4	47	48	32	30	...	157	31	Sept. 25	June 10	June	G. Lombard Kelly, M.D., Dean	12
	ILLINOIS														
13	Loyola University School of Medicine, Chicago	3	5	67	65	97	121	120‡	350	110	Sept. 11	June 8	Sept.	Louis D. Moorhead, M.D., Dean	13
14	Northwestern University Medical School, Chicago	3	5	128	133	144	151	147‡	556	154	Sept. 26#	June 15	March	Irving S. Cutter, M.D., Dean	14
15	University of Chicago, Rush Medical College	3	4	...	...	...	...	...	223†	111	Oct. 2	June 12	.....	Emmet B. Bay, M.D., Associate Dean	15
16	University of Chicago, The School of Medicine of the Division of the Biological Sciences	3	4	...	...	...	...	...	297†	51	Oct. 2#	June 13	Feb.	B. C. H. Harvey, M.D., Dean of Students	16
17	University of Illinois College of Medicine, Chicago	3	5	170	149	158	161	152‡	638	160	Sept. 25	June 7	July	David J. Davis, M.D., Dean	17
	INDIANA														
18	Indiana University School of Medicine, Bloomington-Indianapolis	3	4	129	104	109	107	...	449	104	Sept. 16	June 3	May	Burton D. Myers, M.D., Dean, Bloomington; Willis D. Gatch, M.D., Dean, Indianapolis	18
	IOWA														
19	State University of Iowa College of Medicine, Iowa City	3	4	55	93	73	87	...	308	86	Sept. 21	June 3	July	Ewen Murchison MacEwen, M.D., Dean	19
	KANSAS														
20	University of Kansas School of Medicine, Lawrence-Kansas City	3	4	80	70	70	71	...	291	70	Sept. 21	June 10	June	H. R. Wahl, M.D., Dean	20
	KENTUCKY														
21	University of Louisville School of Medicine, Louisville	2	4	91	75	85	87	...	338	87	Sept. 14	June 1	April	John Walker Moore, M.D., Dean	21
	LOUISIANA														
22	Louisiana State University School of Medicine, New Orleans	3	5	114	81	67	61	62‡	323	59	Sept. 11	May 31	Dec.	Rigney D'Aunoy, M.D., Dean	22
23	Tulane University of Louisiana School of Medicine, New Orleans	3	4	136	110	121	111	...	478	110	Sept. 22	June 5	.....	Charles C. Bass, M.D., Dean	23
	MARYLAND														
24	Johns Hopkins University School of Medicine, Baltimore	Degree	4	73	64	69	73	...	†279	73	Sept. 26	June 4	June	Alan M. Chesney, M.D., Dean	24
25	University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore	3	4	97	85	102	87	...	371	88	Sept. 21	June 1	.....	J. M. H. Rowland, M.D., Dean	25
	MASSACHUSETTS														
26	Boston University School of Medicine, Boston	3	4	61	37	53	50	...	201	49	Sept. 21	June 10	May	Alexander S. Begg, M.D., Dean	26
27	Harvard Medical School, Boston	2	4	125	127	134	131	...	517	130	Sept. 25	June 20	March	C. Sidney Burwell, M.D., Dean	27
28	Tufts College Medical School, Boston	Degree	4	100	90	98	108	...	396	110	Sept. 20	June 17	April	A. Warren Stearns, M.D., Dean	28
	MICHIGAN														
29	University of Michigan Medical School, Ann Arbor	3	4	120	125	123	101	...	469	102	Sept. 25	June 15	March	A. C. Furstenberg, M.D., Dean	29
30	Wayne University College of Medicine, Detroit	3&Degree	5	64	53	59	61	76‡	237	76	Sept. 18	June 15	May	William J. Stapleton, Jr., M.D., Associate Dean	30
	MINNESOTA														
31	University of Minnesota Medical School, Minneapolis	3	5	129	109	124	127	125‡	489	123	Oct. 2#	June 15	Jan.	Harold S. Diehl, M.D., Dean	31
	MISSOURI														
32	St. Louis University School of Medicine, St. Louis	3	4	113	94	109	125	...	441	123	Sept. 19	June 1	Sept.	Alphonse M. Schwitalla, S.J., Ph.D., Dean	32
33	Washington University School of Medicine, St. Louis	4	4	77	77	98	95	...	347	95	Sept. 28	June 11	Sept.	Philip A. Shaffer, Ph.D., Dean	33

	NEBRASKA													
34	Creighton University School of Medicine, Omaha	2	4	63	67	58	58	...	246	57	Sept. 19	May 31	July	Bryan M. Riley, M.D., Dean	34
35	University of Nebraska College of Medicine, Omaha	3	4	90	80	76	70	...	316	70	Sept. 25	June 3	June	C W. M. Poynter, M.D., Dean	35
	NEW YORK													
36	Albany Medical College, Albany	Degree	4	35	25	29	23	...	112	23	Sept. 18	June 10	.....	R. S. Cunningham, M.D., Dean	36
37	Long Island College of Medicine, Brooklyn	3	4	97	89	86	91	...	363	90	Sept. 11	June 8	.....	Jean A. Curran, M.D., Dean	37
38	University of Buffalo School of Medicine, Buffalo	2	4	71	61	61	64	...	257	63	Oct. 2	June 8	June	Edward W. Koch, M.D., Dean	38
39	Columbia University College of Physicians and Surgeons, New York	3	4	108	105	105	88	...	406	89	Sept. 21	June 4	March	Willard C. Rappleye, M.D., Dean	39
40	Cornell University Medical College, New York	3&Degree	4	80	70	73	63	...	286	63	Sept. 18	June 5	.....	William S. Ladd, M.D., Dean	40
41	New York Medical College, Flower and Fifth Ave. Hospitals, New York	Degree	4	86	72	50	66	...	274	66	Sept. 18	June 7	July	Claude A. Burrett, M.D., Dean	41
42	New York University College of Medicine, New York	3&Degree	4	128	122	125	120	...	495	124	Sept. 13	June 5	Jan.	Currier McEwen, M.D., Dean	42
43	University of Rochester School of Medicine and Dentistry, Rochester	3	4	52	47	45	44	...	188	43	Sept. 18	June 15	March	George H. Whipple, M.D., Dean	43
44	Syracuse University College of Medicine, Syracuse	3	4	46	46	38	47	...	177	45	Sept. 21	June 3	.....	H. G. Weiskotten, M.D., Dean	44
	NORTH CAROLINA													
45	Duke University School of Medicine, Durham	3	4	70	67	62	64	54‡	263	64	Sept. 28	June 8	.....	Wilburt C. Davison, M.D., Dean	45
	OHIO													
46	University of Cincinnati College of Medicine, Cincinnati	3	5	78	72	77	66	71‡	293	71	Sept. 22	June 7	March	Stanley Dorst, M.D., Acting Dean	46
47	Western Reserve University School of Medicine, Cleveland	3&Degree	4	75	70	57	64	...	266	64	Sept. 21	June 12	Sept.	Torald Sollmann, M.D., Dean	47
48	Ohio State University College of Medicine, Columbus	3	4	80	70	75	81	...	306	81	Oct. 3	June 10	July	J H. J. Upham, M.D., Dean	48
	OKLAHOMA													
49	University of Oklahoma School of Medicine, Oklahoma City	3	4	65	57	52	52	...	226	52	Sept. 18	June 3	Aug.	Robert U. Patterson, M.D., Dean	49
	OREGON													
50	University of Oregon Medical School, Portland	3	4	72	61	57	63	...	253	63	Oct. 2	June 7	April	Richard B. Dillehunt, M.D., Dean	50
	PENNSYLVANIA													
51	Hahnemann Medical College and Hospital of Philadelphia	3	4	151	138	129	135	...	553	134	Oct. 2	June 6	Sept.	William A. Pearson, M.D., Dean	51
52	Jefferson Medical College of Philadelphia	Degree	4	131	112	127	123	...	493	122	Sept. 20	June 7	.....	Henry K. Mohler, M.D., Dean	52
53	Temple University School of Medicine, Philadelphia	3	4	110	102	118	118	...	448	117	Sept. 20	June 13	Aug.	William N. Parkinson, M.D., Dean	53
54	University of Pennsylvania School of Medicine, Philadelphia	3	4	118	111	134	123	...	486	122	Sept. 25	June 12	March	William Pepper, M.D., Dean	54
55	Woman's Medical College of Pennsylvania, Philadelphia	3	4	29	29	20	22	...	100	21	Sept. 20	June 12	Aug.	Martha Tracy, M.D., Dean	55
56	University of Pittsburgh School of Medicine, Pittsburgh	2	4	80	59	44	51	...	234	51	Sept. 18	June 12	March	William S. McElroy, M.D., Dean	56
	SOUTH CAROLINA													
57	Medical College of the State of South Carolina, Charleston	3	4	42	36	39	43	...	160	43	Sept. 28	June 6	July	Robert Wilson, M.D., Dean	57
	TENNESSEE													
58	University of Tennessee College of Medicine, Memphis	2	4	126	103	102	94	...	425	94	July 7#	June 8	.....	O. W. Hyman, Ph.D., Dean	58
59	Meharry Medical College, Nashville	2	4	62	49	42	30	...	183	30	Oct. 2	May 31	July	Edward L. Turner, M.D., Dean	59
60	Vanderbilt University School of Medicine, Nashville	3&Degree	4	51	47	53	50	...	201	49	Sept. 25	June 12	.....	Waller S. Leathers, M.D., Dean	60
	TEXAS													
61	Baylor University College of Medicine, Dallas	3	4	81	71	78	70	...	300	70	Oct. 2	June 3	.....	Walter H. Moursund, M.D., Dean	61
62	University of Texas School of Medicine, Galveston	3	4	100	93	93	91	...	377	92	Oct. 2	May 31	June	John W. Spies, M.D., Dean	62
	VERMONT													
63	University of Vermont College of Medicine, Burlington	3	4	32	31	36	38	...	137	38	Sept. 13	June 10	June	E. H. Buttles, M.D., Chairman, Committee of Administration	63
	VIRGINIA													
64	University of Virginia Department of Medicine, Charlottesville	3	4	68	61	60	57	...	246	51	Sept. 14	June 10	May	Harvey E. Jordan, Ph.D., Dean	64
65	Medical College of Virginia, Richmond	3	4	84	76	73	64	...	297	61	Sept. 5	June 4	.....	Lee E. Sutton, Jr., M.D., Dean	65
	WISCONSIN													
66	University of Wisconsin Medical School, Madison	3	4	83	85	52	50	...	270	52	Sept. 20	June 17	March	William S. Middleton, M.D., Dean	66
67	Marquette University School of Medicine, Milwaukee	3	5	88	83	73	69	73‡	313	69	Sept. 25	June 12	.....	Eben J. Carey, M.D., Dean	67
	CANADA													
68	University of Alberta Faculty of Medicine, Edmonton, Alta	1	6	31	40	41	42	37§	223	32	Sept. 26	May 14	Aug.	Allan C. Rankin, M.D., Dean	68
69	University of Manitoba Faculty of Medicine, Winnipeg, Man	2	5	60	46	59	47	56‡	212	56	Sept. 22	May 17	April	A. T. Mathers, M.D., Dean	69
70	Dalhousie University Faculty of Medicine, Halifax, N. S.	2	5	50	47	45	37	38‡	179	37	Sept. 12	May 14	June	H. G. Grant, M.D., Dean	70
71	Queen's University Faculty of Medicine, Kingston, Ont	1	6	46	46	42	46	56§	282	43	Sept. 28	May 17	Aug.	Frederick Etherington, M.D., Dean	71
72	University of Western Ontario Medical School, London, Ont	1	6	47	38	36	30	30§	212	29	Sept. 18	May 18	Sept.	F. J. H. Campbell, M.D., Dean	72
73	University of Toronto Faculty of Medicine, Toronto, Ont	1	6	143	118	129	137	133§	798	129	Sept. 26	May 18	Sept.	W. E. Gallie, M.D., Dean	73
74	McGill University Faculty of Medicine, Montreal, Que	3	5	101	88	89	79	99	456	99	Sept. 6	May 28	March	A. Grant Fleming, M.D., Dean	74
75	University of Montreal Faculty of Medicine, Montreal, Que	1	5	47	52	58	48	27‡	205	29	Sept. 18	June 15	Aug.	Albert Le Sage, M.D., Dean	75
76	Laval University Faculty of Medicine, Quebec, Que	Degree	5	61	75	60	60	43	299	32	Sept. 20	May 31	.....	P. C. Dagneau, M.D., Dean	76

Statistics of Recognized Schools of the Basic Medical Sciences will be found in table 3, page 760.

* On probation since December 4, 1938.

† Enrolment not on above table by classes for the two medical schools of the University of Chicago.

‡ Fifth year (internship) enrolment not included in the total column.

§ Sixth year enrolment: Alberta, 32; Queen's, 46; Western Ontario, 31; Toronto, 138.

Students admitted at different times of the year: Stanford, January 4; Colorado, advanced students beginning of quarters; Northwestern, beginning of any quarter; Division of Biological Sciences, spring and summer quarters; Minnesota, January 4; Tennessee, Sept. 25, Dec. 29, 1939, and March 18, 1940.

(Continued from page 757)

exception of the far Southwest. Institutions in this territory can secure only the approval of the national group —the Association of American Universities.

While the minimum requirement of the Council for approved schools is two years, three years or more in college is recommended. For the session 1939-1940, sixty-six of the seventy-seven medical schools in the United States, including the ten schools of the basic medical sciences, had a premedical prerequisite in excess of the minimum. For the session 1938-1939, fifty-eight required more than two years. In table 1 is tabulated for both sessions the number of schools requiring a degree, four years, three years if the baccalaureate degree is conferred in absentia at the end of the first year in medicine, three years, two and one-half years and two years.

ing one school offering courses in the basic medical sciences, require two years, and one has a three year prerequisite.

A table appears later in this study which records the number of graduates of 1939 holding baccalaureate degrees (table 16). The premedical training required by the medical licensing boards in each state is shown in table 4. The two year minimum has been one of the essentials of an acceptable medical school since 1918. Yet five states have not revised or amended their statutes to conform with these prerequisites, although with one exception these states do not as a rule license other than graduates of approved schools.

ESSENTIALS OF AN ACCEPTABLE MEDICAL SCHOOL

The Essentials of an Acceptable Medical School were revised and ratified by the House of Delegates at its

TABLE 3.—*Statistics of Recognized Schools of the Basic Medical Sciences in the United States and Canada*

Name and Location of School	1939-1940 Preliminary Requirement by Years	Length of Course, Academic Years	Students by Classes, Session 1938-1939			Session 1939-1940		Applications for Admission to the 1st Year Will Be Received Until	Executive Officer
			1st Year	2d Year	Totals	Begins 1939	Ends 1940		
ALABAMA									
University of Alabama School of Medicine, University (Tuscaloosa)	3	2	53	48	101	Sept. 13	May 28	.....	Stuart Graves, M.D., Dean
MISSISSIPPI									
University of Mississippi School of Medicine, University	3	2	24	17	41	Sept. 20	June 3	Aug.	B. S. Guyton, M.D., Dean
MISSOURI									
University of Missouri School of Medicine, Columbia	3	2	40	32	72	Sept. 11	June 4	June	Dudley S. Conley, M.D., Dean
NEW HAMPSHIRE									
Dartmouth Medical School, Hanover	3	2	22	18	40	Sept. 21	June 14	Feb.	John P. Bowler, M.D., Dean
NORTH CAROLINA									
University of North Carolina School of Medicine, Chapel Hill	3	2	41	23	64	Sept. 14	June 11	Sept.	William deB. MacNider, M.D., Dean
Wake Forest College School of Medical Sciences, Wake Forest	3	2	32	19	51	Sept. 14	May 27	May	C. C. Carpenter, M.D., Dean
NORTH DAKOTA									
*University of North Dakota School of Medicine, Grand Forks	3	2	27	21	48	Sept. 19	June 11	Sept.	H. E. French, M.D., Dean
SOUTH DAKOTA									
*University of South Dakota School of Medical Sciences, Vermillion	3	2	28	14	42	Sept. 20	June 10	July	Joseph C. Ohlmacher, M.D., Dean
UTAH									
University of Utah School of Medicine, Salt Lake City	3	2	33	26	59	Sept. 25	June 1	Feb.	L. L. Daines, M.D., Dean
WEST VIRGINIA									
West Virginia University School of Medicine, Morgantown	3	2	30	21	51	Sept. 19	June 8	Sept.	Edward J. Van Liere, M.D., Dean
CANADA									
University of Saskatchewan School of Medical Sciences, Saskatoon, Sask.	2	2	24	23	47	Sept. 25	May 10	May	W. S. Lindsay, M.B., Dean

* On probation since May 13, 1939.

Only eleven schools had a stated two year requirement and ten others will demand three years for the session 1939-1940, namely the Universities of Kansas, Tulane, Minnesota, Long Island, Duke, Oklahoma, Hahnemann, Baylor, Vermont and Virginia. Most students, however, enter with a training far in excess of the prescribed minimum. The general trend toward three or more years of college work would appear to be due to a desire for more thorough grounding in all the branches of chemistry and greater familiarity with nonscience subjects, such as literature, history or economics, than can be secured in two years of college. Actually, only 3.8 per cent of the freshman class of 1938-1939 were admitted with less than three years.

The medical schools in Canada vary in their preliminary requirement. For the session 1939-1940 one requires a degree for admission to a five year course; four have a six year medical course preceded by senior matriculation which is equivalent to the work of the first year in a college of arts; one school requires one year for entrance to a five year medical course; three, includ-

1938 session. They are published on pages 790 to 792. The principal change was the recommendation that medical schools not already doing so select their students from among those having three years of college work rather than the minimum requirement of two years. This recommendation was based on a study which revealed that more than one half of the students admitted (3,181) for the session 1936-1937 had a college degree before beginning medicine and 32 per cent had more than four years, leaving only 12 per cent with the minimum of two years. Seven schools raised their requirement for the session 1938-1939 and ten for the session 1939-1940, leaving only eleven schools with a stated two year requirement.

The preliminary requirement for admission to the medical schools in twenty-one schools for the session 1938-1939 was the minimum—two years. A study of the premedical work completed by the students admitted to these schools reveals that only 223, or 3.8 per cent, of the total freshmen enrolment were accepted on the minimum basis. Similar figures computed on the basis

of the freshman class of 1936-1937 placed 12 per cent in this class or 716 students. Ten of the twenty-one schools referred to have raised their requirement for the session 1939-1940. A further study reveals that two of the twenty-one schools did not admit any one with the minimum prescribed preparation, while, on the other hand, one school accepted thirty-five and another thirty-seven, the highest figure.

LENGTH OF MEDICAL COURSE

The medical course in the United States in general covers four academic years of approximately thirty-two weeks each. Fifty-one schools offer such a course. The medical schools of the Universities of Northwestern, Minnesota, Duke and Tennessee operate on the quarter system, permitting a student by utilizing the summer months to decrease the length of time necessary to obtain his degree. A considerable number of the students of these schools do not elect to study during the summer months. The medical schools of the University of Chicago are operated on a plan of individual promotion permitting a student to advance as rapidly as he desires, but the great majority complete the course in twelve quarters.

TABLE 4.—*State Requirements of Preliminary Training*

Two Years of College		
Alabama	Maine	Oregon
Arizona	Maryland	Pennsylvania
Arkansas	Michigan	Rhode Island
Colorado	Minnesota	South Carolina
Delaware	Mississippi	South Dakota
District of Columbia	Montana	Tennessee
Florida	Nevada	Texas
Georgia	New Hampshire	Utah
Idaho	New Jersey	Vermont
Illinois	New Mexico	Virginia
Indiana	New York	Washington
Iowa	North Carolina	West Virginia
Kansas	North Dakota	Wisconsin
Kentucky	Ohio	Wyoming
Louisiana	Oklahoma	
One Year of College		
California		Connecticut
High School Graduation or Its Equivalent		
Massachusetts	Missouri	Nebraska

Fifty-five schools require a four year course, while twelve require four years of systematic instruction followed by a fifth year spent as an intern or in research work. Ten schools offer only a two year course.

Five of the medical schools of Canada offer a five year course, four have a six year course and one offers courses in the medical sciences only which are covered in two years. Four Canadian schools require an internship for graduation. These data are shown in tables 2 and 3.

MEDICAL SCHOOL SURVEY

In September 1933 the Council on Medical Education and Hospitals voted to undertake a resurvey of all medical schools in the United States and Canada. During the academic years 1934-1935 and 1935-1936 Dr. Herman G. Weiskotten, dean of Syracuse University College of Medicine, visited all schools in company with a representative of the Council, the Association of American Medical Colleges or the Federation of State Medical Boards of the United States. A confidential report in graphic form by which the schools were grouped in tenths of a rank order of excellence for each one of several criteria was sent to the schools visited. A committee of the Council is now preparing a final report which it is expected will present a comprehensive review of medical education in this country. Such a commentary will doubtless be a valuable source of information to all who may be interested in medical teaching and will constitute a permanent record of the Association's most important contribution in the field of professional education. This book will be available during the early part of the next college session.

DEVELOPMENTS IN MEDICAL EDUCATION

Reports received from a large number of medical schools and follow-up inspections of many indicate that, as a result of the Council's survey, substantial improvements have been and are being made. A study of twenty-eight lower ranking medical schools may be found in table 5.

TABLE 5.—*Improvements in Medical Schools 1934-1939*

Study of Twenty-Eight Lower Ranking Medical Schools	
Increased Budgets	Twenty-four schools increased annual budgets an average of $47,192 each, totaling $1,132,599
Selection of Students	Twenty-two schools selected students more carefully and adopted higher scholastic standards
Salaried Instructors	Twenty-five schools increased the number of salaried instructors
Preclinical Facilities	Seventeen schools improved preclinical facilities at costs of from $29,000 to $500,000
Clinical Facilities	Twenty schools improved clinical teaching facilities at costs totaling $10,546,529
Other Facilities	Eleven schools have improved their libraries, building service and other facilities

MEDICAL CURRICULUM

The standard curriculum recognized by the Council on Medical Education and Hospitals and contained in its Essentials of an Acceptable Medical School consists of from 3,600 to 4,400 hours, distributed as from 900 to 1,100 hours a year and grouped as set forth in the following schedule, each group to be allotted approximately the percentage of hours of the whole number of hours in the courses as stated:

	Per Cent		
1. Anatomy, including embryology and histology	14	—	18.5
2. Physiology	4.5	—	6
3. Biochemistry	3.5	—	4.5
4. Pathology, bacteriology and immunology	10	—	13
5. Pharmacology	4	—	5
6. Hygiene and sanitation	3	—	4
7. General medicine	20	—	26.5
Neurology and psychiatry			
Pediatrics			
Dermatology and syphilology			
8. General surgery	13	—	17.5
Orthopedic surgery			
Urology			
Ophthalmology			
Otolaryngology			
Roentgenology			
9. Obstetrics and gynecology	4	—	5
Totals	76	—	100
Electives	24	—	0

When the teaching conditions demand it, a subject may be transferred from one division to another.

SCHOOLS OF THE BASIC MEDICAL SCIENCES

There are ten schools in the United States and one school in Canada which offer only the first two years of the medical curriculum. For the most part these schools are located in smaller communities where clinical material is so scarce that satisfactory teaching of clinical medicine would be utterly impossible. In many instances, facilities do not exist for the satisfactory teaching of such subjects as physical diagnosis and gross pathology, which involve the use of clinical material. The same is true of the introductory courses in medicine and surgery, which commonly form a part of the second

(Continued on page 764)

TABLE 6.—*Birth*

Marginal Number	Name of School	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Marginal Number
1	University of Alabama School of Medicine	62	..	..	..	..	..	..	..	4	3	..	..	1	..	..	1	..	..	..	3	..	1
2	University of Arkansas School of Medicine	1	..	174	..	..	..	..	..	2	1	..	3	2	1	4	3	6	..	..	2	1	2
3	University of California Medical School	2	3	..	129	1	1	1	1	..	..	1	10	2	3	1	..	1	..	..	1	3	3
4	College of Medical Evangelists	2	5	2	51	12	1	..	6	5	1	3	11	6	5	3	2	1	1	7	3	7	4
5	Univ. of Southern California School of Medicine	..	3	1	70	6	1	1	..	..	..	..	9	5	9	1	..	..	..	..	2	7	5
6	Stanford University School of Medicine	1	1	1	119	2	1	..	2	..	..	2	10	3	3	2	..	..	..	1	1	2	6
7	University of Colorado School of Medicine	..	1	..	7	117	2	..	..	..	..	1	3	2	4	7	..	1	..	..	2	3	7
8	Yale University School of Medicine	1	..	..	5	3	39	..	..	2	2	..	2	..	..	2	2	..	5	1	27	3	8
9	Georgetown University School of Medicine	..	..	..	6	..	10	..	24	1	..	1	3	..	1	1	..	..	2	4	29	2	9
10	George Washington University School of Medicine	2	..	1	8	1	5	..	56	1	4	2	6	1	2	1	1	1	3	16	7	2	10
11	Howard University College of Medicine	3	1	1	..	..	2	1	10	1	8	..	1	2	..	..	2	2	2	8	2	1	11
12	Emory University School of Medicine	13	..	..	..	..	..	..	..	28	137	..	..	..	..	..	..	..	..	..	..	..	12
13	University of Georgia School of Medicine	2	..	..	..	..	..	..	..	2	140	..	..	..	..	..	..	..	..	..	..	1	13
14	Loyola University School of Medicine	..	1	..	7	1	2	..	..	2	..	1	208	12	4	..	..	..	1	..	2	14	14
15	Northwestern University Medical School	5	4	4	23	4	..	..	..	3	2	19	171	11	13	18	6	1	..	1	3	20	15
16	University of Chicago, Rush Medical College	5	..	..	1	1	2	..	..	2	..	7	47	..	4	5	..	..	..	..	4	5	16
17	Univ. of Chicago, Division of Biological Sciences	2	..	..	13	2	1	..	2	2	..	7	116	11	9	6	2	1	1	1	2	15	17
18	University of Illinois College of Medicine	1	..	..	1	..	..	..	..	..	1	..	512	9	7	1	4	..	..	..	3	6	18
19	Indiana University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	1	436	..	..	..	..	..	..	..	..	19
20	State University of Iowa College of Medicine	..	..	..	1	2	..	..	..	..	..	..	8	2	248	1	1	..	..	..	2	..	20
21	University of Kansas School of Medicine	..	1	..	3	5	..	..	1	..	..	..	8	2	2	179	2	1	..	..	..	5	21
22	University of Louisville School of Medicine	1	..	..	6	..	3	..	..	1	1	3	7	24	1	1	172	..	..	1	2	2	22
23	Louisiana State University School of Medicine	4	..	..	4	..	..	..	..	2	2	2	2	..	2	1	5	219	..	1	1	..	23
24	Tulane Univ. of Louisiana School of Medicine	51	4	9	1	2	..	..	..	43	18	..	2	..	..	2	14	112	..	..	1	1	24
25	Johns Hopkins University School of Medicine	6	2	..	10	1	7	..	2	4	3	..	11	4	4	4	5	1	5	42	11	5	25
26	University of Maryland School of Medicine	..	..	..	3	2	12	3	4	3	7	..	3	1	..	..	1	..	..	155	4	..	26
27	Boston University School of Medicine	..	..	..	2	..	7	..	..	..	..	..	..	1	1	..	..	..	19	..	116	1	27
28	Harvard Medical School	5	..	1	12	6	18	..	7	1	8	1	24	5	8	4	4	3	10	3	104	11	28
29	Tufts College Medical School	..	..	..	1	..	14	..	1	2	..	..	1	..	..	..	..	..	19	..	313	..	29
30	University of Michigan Medical School	2	..	..	5	2	3	..	..	..	3	..	18	15	6	3	2	1	1	..	8	249	30
31	Wayne University College of Medicine	1	..	..	1	1	3	..	..	..	..	..	6	4	8	..	2	..	1	..	6	131	31
32	University of Minnesota Medical School	..	1	..	2	3	..	..	..	1	..	..	10	1	10	2	..	1	..	..	2	5	32
33	University of Mississippi School of Medicine	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	33
34	University of Missouri School of Medicine	..	..	3	..	1	..	..	..	..	..	..	1	..	..	3	..	..	..	..	..	..	34
35	St. Louis University School of Medicine	..	..	2	19	2	6	..	..	..	..	2	64	10	5	7	5	..	1	..	8	9	35
36	Washington University School of Medicine	9	2	3	22	3	..	..	..	..	2	3	35	3	4	20	7	..	..	1	3	5	36
37	Creighton University School of Medicine	..	1	..	59	2	1	..	1	..	..	..	2	2	21	14	..	..	..	..	..	..	37
38	University of Nebraska College of Medicine	..	..	1	2	4	..	..	1	..	..	1	6	1	12	7	..	..	1	..	2	1	38
39	Dartmouth Medical School	..	..	..	..	..	3	..	1	..	..	1	1	..	..	1	..	..	1	..	8	..	39
40	Albany Medical College	..	..	..	..	..	3	..	..	..	..	..	..	..	2	..	..	..	2	..	6	..	40
41	Long Island College of Medicine	1	..	..	1	..	13	..	..	..	..	..	2	..	1	..	..	..	..	..	1	1	41
42	University of Buffalo School of Medicine	..	..	..	..	..	2	..	..	..	..	..	2	..	..	..	1	..	1	1	6	1	42
43	Columbia Univ. College of Physicians & Surgeons	2	1	1	4	3	14	1	2	..	3	1	11	4	..	3	1	..	7	2	28	2	43
44	Cornell University Medical College	1	2	..	5	..	9	..	..	3	4	1	..	1	1	1	2	..	1	..	13	..	44
45	New York Medical College	..	..	..	5	..	9	..	..	..	..	..	..	..	..	..	..	..	..	..	4	2	45
46	New York University College of Medicine	3	..	..	1	..	5	..	1	..	1	..	4	..	1	..	1	..	..	2	13	..	46
47	Univ. of Rochester School of Medicine & Dentistry	..	..	..	9	..	6	1	1	..	1	1	2	1	..	1	3	..	1	1	14	3	47
48	Syracuse University College of Medicine	..	..	..	..	..	2	..	..	..	..	1	2	..	2	1	..	..	1	..	2	..	48
49	University of North Carolina School of Medicine	..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	1	..	49
50	Duke University School of Medicine	8	1	1	5	..	5	3	4	8	11	..	5	2	3	..	..	1	1	6	4	6	50
51	Wake Forest College School of Medical Sciences	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	51
52	University of North Dakota School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	52
53	University of Cincinnati College of Medicine	1	..	..	3	2	2	..	..	1	..	1	5	11	1	..	26	..	..	1	..	3	53
54	Western Reserve University School of Medicine	..	..	..	3	1	2	..	1	1	..	..	5	3	1	1	2	..	..	..	2	6	54
55	Ohio State University College of Medicine	1	..	..	..	1	1	..	..	..	1	..	3	2	..	..	2	1	..	..	3	2	55
56	University of Oklahoma School of Medicine	4	..	8	2	1	..	..	..	..	..	..	4	1	5	11	..	..	..	..	1	..	56
57	University of Oregon Medical School	..	2	..	4	1	1	..	..	..	..	15	2	1	4	2	1	..	..	..	1	1	57
58	Hahnemann Medical College	..	..	1	1	..	9	9	1	..	1	..	10	3	1	..	..	..	1	2	24	3	58
59	Jefferson Medical College of Philadelphia	2	1	..	3	..	3	8	..	2	3	1	3	2	..	1	1	..	3	6	11	3	59
60	Temple University School of Medicine	2	2	..	2	..	5	2	..	7	2	1	1	1	1	1	1	..	..	4	4	2	60
61	University of Pennsylvania School of Medicine	6	..	..	2	1	1	1	2	2	1	..	5	1	3	4	2	..	8	1	10	..	61
62	Woman's Medical College of Pennsylvania	..	1	..	..	1	3	1	1	..	..	1	5	..	..	..	..	..	..	1	2	2	62
63	University of Pittsburgh School of Medicine	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	1	..	..	63
64	Medical College of the State of South Carolina	4	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	64
65	Univ. of South Dakota School of Medical Sciences	..	..	..	..	1	..	..	..	..	..	..	5	..	5	1	..	..	..	..	..	..	65
66	University of Tennessee College of Medicine	18	..	12	4	..	..	..	1	5	4	..	7	..	1	7	30	3	..	1	1	..	66
67	Meharry Medical College	4	..	4	2	..	..	..	9	11	15	..	4	..	..	1	4	9	..	4	1	5	67
68	Vanderbilt University School of Medicine	13	5	..	..	..	1	..	..	5	5	1	1	1	..	1	31	1	..	1	..	3	68
69	Baylor University College of Medicine	3	..	4	1	..	1	..	..	1	2	..	1	1	..	1	3	6	..	..	1	..	69
70	University of Texas School of Medicine	1	..	5	..	3	..	..	1	..	4	..	..	1	1	5	..	5	..	..	..	..	70
71	University of Utah School of Medicine	..	..	..	..	1	..	..	..	..	..	13	..	..	..	..	..	..	..	..	..	..	71
72	University of Vermont College of Medicine	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	4	..	12	..	72
73	University of Virginia Department of Medicine	5	..	..	..	..	3	1	3	..	3	..	..	..	..	..	2	..	1	5	3	..	73
74	Medical College of Virginia	1	..	1	4	..	2	2	3	1	4	1	1	..	3	..	4	..	..	4	2	..	74
75	West Virginia University School of Medicine	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	75
76	University of Wisconsin Medical School	1	..	..	2	..	1	..	1	..	1	2	19	2	4	1	..	..	..	..	2	5	76
77	Marquette University School of Medicine	..	..	..	13	..	2	1	2	..	..	1	8	2	4	..	..	..	1	..	3	19	77
78	University of Alberta Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	78
79	University of Manitoba Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	79
80	Dalhousie University Faculty of Medicine	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	5	..	80
81	Queen's University Faculty of Medicine	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	81
82	University of Western Ontario Medical School	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	82
83	University of Toronto Faculty of Medicine	..	..	..	1	..	1	..	1	..	..	..	..	..	2	..	..	..	..	1	1	1	83
84	McGill University Faculty of Medicine	..	1	..	27	1	3	..	..	..	..	1	1	..	..	..	..	..	3	1	22	3	84
85	University of Montreal Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	85
86	Laval University Faculty of Medicine	..	..	..	..	..	3	..	..	..	..	..	1	..	..	..	..	..	1	..	5	..	86
87	Univ. of Saskatchewan School of Medical Sciences	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	87
	Total	264	46	240	700	202	263	36	153	161	411	99	1443	618	445	344	362	378	112	288	897	592	

Place of Students

Marginal Number	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions	Canada	Foreign	Totals	Marginal Number
1	2	4	..	2	..	1	..	2	..	4	..	..	4	..	..	..	..	1	..	2	..	..	..	1	..	1	1	1	..	..	1	101	1
2	1	1	9	..	..	..	..	6	2	28	..	..	1	12	..	1	..	1	..	3	6	1	..	1	1	1	4	..	1	1	1	282	2
3	4	..	6	..	4	1	..	5	..	20	..	..	4	2	5	4	..	..	..	2	3	..	1	3	..	1	..	..	2	3	15	245	3
4	8	1	7	6	8	1	1	2	2	17	1	6	10	6	9	13	..	1	8	5	4	1	..	4	14	1	10	..	6	20	34	340	4
5	4	3	3	8	5	..	..	2	1	10	..	4	6	..	4	5	..	..	4	..	..	1	..	1	4	..	2	1	1	4	11	199	5
6	2	..	1	3	1	2	1	1	1	8	..	1	5	3	6	3	..	..	1	..	4	11	..	..	12	1	1	..	4	4	10	237	6
7	1	..	5	3	8	1	..	3	4	5	..	1	2	2	2	4	..	1	1	..	2	2	..	..	..	..	1	4	2	..	5	209	7
8	3	..	1	1	..	..	2	12	1	33	1	..	9	..	..	11	6	..	1	..	2	..	..	1	5	3	..	..	1	4	9	200	8
9	..	..	1	1	..	..	5	49	..	111	4	..	2	..	1	42	10	..	1	..	..	..	..	2	3	2	..	..	8	1	9	336	9
10	2	..	2	1	1	1	..	11	..	22	2	..	8	..	1	16	1	2	1	3	..	11	1	10	4	5	2	1	3	1	11	243	10
11	..	2	2	..	1	..	..	7	..	15	7	..	1	1	..	12	..	1	..	1	1	..	..	7	1	5	..	..	2	..	16	129	11
12	..	..	..	..	..	..	1	1	..	3	8	..	1	..	..	..	..	10	..	3	..	..	..	..	..	..	..	..	..	1	2	208	12
13	..	..	1	..	..	..	..	1	..	..	2	..	..	1	..	1	..	2	..	1	2	..	..	..	..	..	..	..	..	..	1	157	13
14	4	..	1	1	..	..	..	17	..	25	..	..	28	..	..	7	..	..	..	..	1	..	..	1	..	..	3	1	6	..	..	350	14
15	15	..	17	19	13	3	..	6	2	7	..	15	18	4	1	11	..	..	13	1	2	14	..	1	32	6	28	3	3	3	11	556	15
16	10	1	7	1	4	1	3	2	1	8	3	13	1	1	..	5	1	..	14	1	..	18	1	1	8	7	14	..	4	2	8	223	16
17	5	..	2	7	5	..	..	3	2	14	2	3	12	3	2	7	1	..	4	1	2	6	..	..	8	4	5	1	3	..	2	297	17
18	1	1	7	..	2	..	..	3	1	15	1	1	5	1	1	5	2	..	1	..	1	..	..	..	1	..	2	2	..	7	33	638	18
19	..	..	..	..	..	..	..	3	..	4	1	..	1	..	..	1	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	449	19
20	4	..	3	1	5	..	..	..	..	4	..	..	2	..	1	4	..	..	3	1	2	..	..	1	1	1	1	1	..	..	8	308	20
21	3	..	54	..	4	..	..	..	..	1	..	..	6	5	..	..	..	..	1	..	1	..	..	..	1	1	2	..	..	..	3	291	21
22	..	3	11	..	..	..	..	6	..	20	2	..	25	1	1	6	..	2	2	1	1	10	..	..	3	5	9	..	2	..	3	338	22
23	1	7	..	..	..	..	..	1	..	30	1	1	..	1	..	..	1	5	..	3	15	6	..	..	1	..	1	1	3	..	..	323	23
24	..	66	7	..	..	1	..	6	3	14	13	..	..	8	..	2	..	14	..	4	49	1	..	4	1	3	..	..	13	..	9	478	24
25	3	1	5	2	1	..	1	16	..	34	7	2	11	1	2	25	2	3	..	4	4	3	..	3	3	2	3	..	1	2	11	279	25
26	1	1	..	..	..	..	..	17	..	41	20	..	4	..	1	32	2	2	..	1	..	2	..	6	..	26	..	..	14	1	2	371	26
27	..	..	..	..	..	..	9	4	..	20	..	..	1	..	1	..	7	..	..	..	..	..	..	..	..	1	1	..	1	4	5	201	27
28	11	1	19	3	4	1	3	13	..	67	16	1	23	..	4	22	12	1	1	4	8	7	3	4	7	7	6	1	7	5	21	517	28
29	..	..	..	..	..	..	8	3	..	7	..	..	1	..	..	..	24	..	..	..	..	..	1	..	..	..	..	..	1	..	..	396	29
30	3	..	2	5	1	..	..	11	..	25	1	2	32	2	1	13	1	1	1	1	2	1	1	2	8	3	6	..	6	5	15	469	30
31	2	..	5	..	..	..	1	4	..	17	..	1	7	..	..	11	..	..	..	1	..	..	..	1	1	..	2	..	..	13	7	237	31
32	339	..	2	15	5	..	..	2	..	10	..	12	..	2	1	3	..	..	16	..	..	1	..	..	10	1	19	..	1	5	7	489	32
33	..	36	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	41	33
34	..	..	59	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	..	..	72	34
35	6	2	75	15	..	2	..	16	2	52	..	1	50	6	2	19	6	2	1	..	6	4	..	..	9	2	3	..	7	5	8	441	35
36	5	1	112	3	..	2	1	4	1	18	4	1	6	5	3	2	..	..	4	2	5	11	..	2	9	3	4	1	5	3	8	347	36
37	10	..	6	5	39	..	..	5	1	20	..	2	12	1	4	1	..	..	15	..	..	4	..	..	10	..	3	3	2	..	..	246	37
38	4	1	7	1	233	1	..	..	..	3	..	1	2	2	..	1	..	..	9	..	2	1	..	..	1	..	1	3	..	1	3	316	38
39	1	..	1	1	..	..	6	1	..	8	..	..	..	1	..	3	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	40	39
40	..	1	1	..	..	..	5	5	..	79	..	..	..	..	..	3	1	..	1	..	..	..	3	..	..	..	..	..	..	..	..	112	40
41	..	..	..	..	..	..	..	22	..	282	..	..	4	..	..	12	1	..	..	1	1	..	1	1	..	..	1	..	..	..	17	363	41
42	..	..	1	..	..	..	..	3	..	200	..	..	12	..	..	14	2	..	..	..	..	..	..	1	..	..	..	..	..	3	7	257	42
43	3	..	2	1	1	1	2	42	..	193	2	2	9	..	3	15	4	..	..	3	1	1	2	2	5	1	4	..	4	1	12	406	43
44	..	..	3	..	..	..	1	40	..	165	2	..	5	2	1	16	1	..	2	..	..	2	1	..	..	..	1	..	..	..	..	286	44
45	..	..	..	..	1	..	..	51	..	189	..	..	6	..	..	4	..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	274	45
46	1	..	5	..	1	..	..	48	..	355	1	..	7	..	..	12	..	..	..	..	1	3	1	1	1	1	1	..	..	4	20	495	46
47	1	..	2	..	1	..	1	2	..	91	2	1	18	2	..	12	..	..	..	1	..	1	4	1	..	..	..	..	..	2	1	188	47
48	1	..	..	1	..	..	1	6	..	140	..	..	1	..	..	8	2	..	..	..	..	..	1	..	..	..	..	..	1	3	1	177	48
49	..	1	..	..	..	..	..	3	..	4	46	..	..	..	..	1	..	1	..	..	..	..	..	1	..	..	..	..	1	..	2	64	49
50	..	..	..	2	2	..	..	19	..	21	53	1	9	5	2	17	..	20	..	..	3	2	..	10	5	10	..	..	2	1	5	263	50
51	..	..	..	..	..	..	..	1	..	..	44	..	..	..	..	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	51	51
52	6	..	1	2	..	..	..	..	..	..	..	35	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	48	52
53	..	..	1	1	..	..	..	5	1	12	1	..	197	..	..	5	..	..	1	1	..	..	..	..	1	4	3	..	1	1	2	293	53
54	..	..	1	1	..	..	..	2	..	13	..	..	173	..	2	20	2	..	2	..	1	..	..	..	1	9	1	..	1	1	8	266	54
55	1	..	2	..	2	..	..	..	..	10	..	..	241	2	..	11	..	..	..	..	..	..	..	1	..	8	..	..	1	1	9	306	55
56	1	2	7	..	4	..	..	..	1	2	..	..	2	145	..	2	..	..	..	3	16	..	..	..	1	..	1	1	1	..	1	226	56
57	5	..	3	10	2	..	..	..	3	2	..	2	1	..	103	1	..	..	3	..	2	3	..	..	65	..	1	..	1	5	6	253	57
58	1	..	8	..	..	1	4	63	..	65	1	..	16	..	..	273	5	..	..	..	2	2	1	1	1	3	..	21	1	17	553	58
59	..	1	4	1	..	..	1	41	2	17	21	..	17	..	1	277	10	4	..	..	1	..	1	3	1	12	1	..	8	2	14	493	59
60	2	..	6	..	1	..	..	36	..	27	11	9	9	..	..	271	..	3	..	1	2	4	..	2	2	4	4	..	4	3	9	448	60
61	3	..	10	1	3	1	..	32	..	17	14	4	14	..	1	273	1	2	..	6	5	6	..	4	5	9	9	1	..	3	12	486	61
62	1	..	2	..	..	..	..	5	..	19	..	2	..	..	..	38	..	..	..	..	1	1	..	..	1	1	..	..	2	..	9	100	62
63	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	222	..	..	..	..	1	..	..	..	..	2	..	..	..	..	1	234	63
64	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	3	1	147	..	..	..	..	..	..	..	1	..	..	..	..	..	160	64
65	1	..	..	1	..	..	..	1	..	1	..	1	..	1	..	..	..	..	21	..	..	..	..	..	..	..	1	..	1	..	1	42	65
66	..	53	14	..	1	..	..	..	2	7	8	1	..	17	1	5	..	3	..	186	15	1	..	3	2	2	1	2	..	1	6	425	66
67	..	5	1	..	..	..	..	8	..	10	8	..	5	1	..	4	..	11	..	4	17	..	..	14	..	6	..	..	..	..	16	183	67
68	..	9	6	..	..	..	..	1	..	1	2	2	4	6	..	1	1	8	..	79	6	..	..	2	..	2	..	..	1	..	1	201	68
69	..	4	3	..	1	1	..	2	..	1	2	..	4	14	..	2	..	1	1	1	222	1	..	..	..	1	3	..	..	1	10	300	69
70	..	1	4	..	1	..	..	..	1	4	..	1	1	3	..	1	..	..	..	4	326	..	..	1	..	..	..	..	1	..	2	377	70
71	..	1	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	41	..	..	..	..	..	..	..	..	1	59	71
72	..	..	..	..	2	..	4	6	..	12	..	..	4	..	..	2	1	1	..	..	1	..	79	..	1	..	..	..	..	1	4	137	72
73	..	..	..	..	..	..	..	7	..	8	5	..	1	..	..	1	..	4	..	2	1	..	..	174	2	12	..	..	2	..	1	246	73
74	..	..	2	..	1	..	..	4	1	24	33	1	4	..	..	8	..	2	..	3	..	..	..	104	1	53	..	..	13	1	9	297	74
75	..	..	..	..	..	1	1	..	..	..	..	..	3	..	..	3	..	..	..	..	..	..	..	1	..	39	..	..	..	..	2	51	75
76	4	..	..	..	..	..	..	..	..	9	..	2	5	..	..	5	..	..	1	..	2	..	..	..	3	..	186	..	..	5	7	270	76
77	17	..	..	2	1	..	..	4	..	43	..	2	6	..	1	5	..	..	1	..	..	1	..	1	12	..	134	..	14	1	12	313	77
78	2	..	..	1	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	1	1	..	..	..	..	..	..	..	201	14	223	78
79	1	..	..	1	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	205	3	212	79
80	..	..	..	..	..	..	..	2	..	21	..	..	1	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	121	25	179	80
81	..	..	..	..	..	..	..	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	271	3	282	81
82	..	..	..	..	..	..	..	3	..	16	1	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	178	8	212	82
83	1	..	2	..	..	..	1	..	1	6	..	..	5	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	715	57	798	83
84	1	..	2	..	..	7	16	8	..	33	3	..	8	1	..	6	4	..	..	..	2	..	3	3	6	..	2	..	..	263	25	456	84
85	..	..	..	..	..	..	5	..	..	1	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	192	1	205	85
86	..	..	..	..	..	..	9	2	..	16	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	2	257	1	299	86
87	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	46	1	47	87
	508	210	534	129	370	30	93	721	36	2863	357	134	1097	273	170	1849	115	258	135	340	755	191	105	385	278	271	496	28	192	2585	653	24,215	

(Continued from page 761)

year schedule. Prolonged study of the problem led to the adoption in February 1937 of the following policy:

Following the recent survey of the medical schools it was decided that, effective July 1, 1939, the Council will publish a list of schools which teach acceptably gross and microscopic anatomy, biochemistry, physiology, pharmacology, bacteriology and pathology, even though they do not offer a full course leading to a medical degree.

The acceptance of courses involving the use of clinical material shall be left to the discretion of the faculties which admit to advanced standing students transferring from approved schools of the basic medical sciences.

Surveys of the clinical courses and facilities will be made by the Council and reported to the individual medical schools on request.

Accordingly, the educational data in tables 2 and 3 are presented in two parts:

1. *Recognized Medical Schools in the United States and Canada.*
2. *Recognized Schools of the Basic Medical Sciences in the United States and Canada.*

In subsequent tabulations, however, the figures for the two groups are combined.

APPROVAL OF MEDICAL SCHOOLS IN CANADA

On June 24, 1937, at a meeting in Ottawa, Ont., Canada, at which representatives of the medical schools in Canada and the assistant secretary of the Canadian Medical Association were present, the secretary speaking for the Council on Medical Education and Hospitals discussed the survey of Canadian medical schools made during 1934-1936 and inquired as to the policy to be adopted in the future—that is, whether the American Medical Association should continue the grading of medical schools in Canada or whether they would prefer that the medical schools themselves or some other body take over this task. The problem was referred to the Canadian Medical Association.

At its sixty-ninth annual meeting in June 1938 the Committee on Medical Education of the Canadian Medical Association brought in a report which was accepted by the members of the General Council of the Canadian Medical Association and reads, in part, as follows:

In the event of the Council on Medical Education of the American Medical Association publishing a list of approved schools, those Canadian schools wishing their inspection and approval could request this inspection. This would leave each school free to deal directly with the Council on Medical Education of the American Medical Association and thus obviate misunderstandings.

There seems to be a fairly uniform opinion expressed by the various medical schools in Canada—that the Canadian Medical Association should share some responsibility in this country so far as medical education is concerned. The majority of the schools, however, feel that the aims and purposes of the Canadian Medical Association are not primarily those of undergraduate medical education, which is largely a problem of the schools themselves. However, it is recommended that, if the Council on Medical Education of the American Medical Association in the future conduct similar surveys at five or ten year intervals, such as the recent survey, the Canadian schools take advantage of and be included in this survey. Those schools which are members of the Association of American Medical Colleges could have a representative from this association included in the personnel of the inspection. The remaining schools which are not members of the Association of American Medical Colleges could ask to have a member of the Association of American Medical Colleges included in the inspecting personnel, or some representative from the Committee on Medical Education of the Canadian Medical Association.

It would appear from the foregoing that the approval of medical schools by the Council on Medical Education and Hospitals of the American Medical Association rests with the schools themselves.

The Council on Medical Education and Hospitals at a meeting in St. Louis on May 13, 1939, voted that after Jan. 1, 1945, the Canadian medical schools will be included in the Council's classification only at their own request.

STATISTICS OF MEDICAL SCHOOLS AND SCHOOLS OF THE BASIC MEDICAL SCIENCES

Medical schools approved by the Council on Medical Education and Hospitals during 1938-1939 are listed in table 2, pages 758 and 759, which lists the premedical requirement for the session 1939-1940, the length of the medical course by years, enrolment by classes for the session 1938-1939, including fifth year students interning or engaged in research, the number of graduates since July 1, 1938, and dates of the beginning and ending of the forthcoming session and the month until which applications for admission to the freshman class are received. Changes in the classification that have taken place since the publication of the educational statistics in 1938[4] can be noted in the footnotes at the bottom of the table and refer to those schools which are marked by asterisks preceding the name. Also contained in the footnotes are references to the fifth and sixth year enrolments and those schools which admit students at varying times during the year. The two medical schools of the University of Chicago do not report their students by classes and in this tabulation, therefore, only the total enrolment is given.

Similar data pertaining to the schools of the basic medical sciences are given in table 3.

The data presented in this table constitute the basis also for several of the subsequent tabulations, and beginning on page 825 are given historical information and essential facts concerning the schools arranged by states.

Sixty-seven medical schools in the United States and nine in Canada are listed and ten schools of the basic medical sciences in the United States and one in Canada. All but three of these schools at the present time enjoy the approval of the Council, the three being on probation. In eighty-five schools, 6,364 freshmen students were enrolled, 5,733 sophomores, 5,506 juniors, 5,447 seniors, 398 fifth year and 247 sixth year students during the session just ended. In the two medical schools of the University of Chicago 520 students were enrolled, making a total of 24,215 in the eighty-seven schools listed. There were in the United States 5,754 freshmen, 5,160 sophomores, 4,947 juniors, 4,921 seniors and the 520 students of the University of Chicago, a total of 21,302. The total students registered by classes in the United States was 22,454. The enrolment in the schools of the basic medical sciences in the United States numbered 569, of which 330 were freshmen and 239 sophomores. The enrolment in the ten Canadian schools was first year 610, second year 573, third year 559, fourth year 526, fifth year 398 and sixth year 247, a total of 2,913. In the one school of the basic medical sciences in Canada there were forty-seven students: twenty-four freshmen and twenty-three sophomores.

The 24,215 medical students enrolled exclude 1,152 fifth year students in the United States interning or engaged in research and 121 in Canada interning as a requirement for the degree of Doctor of Medicine.

4. J. A. M. A. **111**: 786 (Aug. 27) 1938.

Since July 1, 1938, 5,575 received M.D. degrees, 5,290 from schools in the United States and 285 from Canadian institutions.

There were also 117 part time, 251 special and 1,461 graduate students studying in medical schools.

With one exception the schools of the basic medical sciences had an enrolment of considerably less than 100. The lowest enrolment among regular medical schools was 100 students at the Woman's Medical College of Pennsylvania and the highest 798 at the University of Toronto Faculty of Medicine. The correspondingly high figure among schools in the United States was 638 enrolled at the University of Illinois College of Medicine.

Twelve schools, exclusive of those of the basic medical sciences, matriculated 200 or less with one exception. One school had 100 students, thirty-two between 201 and 300, fourteen from 301 to 400, twelve from 401 to 500 and three between 501 and 600. Two schools matriculated more than 600. The smallest enrolment (forty) was at Dartmouth Medical School, where twenty-two freshmen and eighteen sophomores were matriculated. This school does not offer the complete medical course. Among coeducational medical schools, Albany Medical College enrolled the smallest number of students, 112.

The Woman's Medical College of Pennsylvania likewise graduated the lowest number, twenty-one. The school granting degrees to the greatest number was the University of Illinois College of Medicine, which awarded 160 diplomas.

The majority of schools will begin the session 1939-1940 about the middle of September and complete the year's work early in June.

Of seventy-one schools that replied to the inquiry regarding the month until which applications for admission to the first year class will be received, three replied January, three February, fifteen March, five April, seven May, nine June, nine July, seven August, twelve September and one December.

The name of the dean or administrative officer of each institution is also given in tables 2 and 3.

BIRTH PLACE OF STUDENTS

In table 6, pages 762 and 763, the birth state of students in attendance in medical schools during 1938-1939 is shown by schools The state furnishing the greatest number of students, according to state of birth, was New York with 2,863, followed by Pennsylvania with 1,849, Illinois with 1,443 and Ohio with 1,097. Fewer than 900 were born in any other one state. Six states contributed less than 100 students, the lowest being Wyoming with twenty-eight. In ten states there were between 100 and 200 students, ten less than 300 but more than 200, seven less than 400, three less than 500 and the same number between 500 and 600 students and also 700 and 800, while in one state there were between 600 and 700 and in another between 800 and 900 students.

There were 192 born in the United States territories and possessions studying in forty-six schools in the United States and two in Canada. In addition, 2,585 students of Canadian birth were also studying medicine, 136 of whom were matriculated in forty-two schools in the United States and 2,449 in the ten Canadian medical schools. Twenty students of Canadian birth were registered at the College of Medical Evangelists and thirteen at Wayne University College of Medicine. Students born in New York were enrolled in all but seven states. Pennsylvania was represented in all but twelve states. Residents of New Jersey, which has no medical school, were admitted in all but fifteen schools. Foreign born students were matriculated in sixty-four schools. There were 515 so enrolled, of whom thirty-four were studying at the College of Medical Evangelists, thirty-three at the University of Illinois College of Medicine, twenty-one at Harvard Medical School and twenty at New York University College of Medicine. All other schools registered fewer than twenty. It may be presumed that many of these are now citizens of the United States.

From the twelve states in which no medical schools are located there were enrolled 1,791 students in at least sixty-seven schools as follows:

	Enrolled	No. of Schools
Arizona	46	23
Delaware	36	15
Florida	161	35
Idaho	99	32
Maine	112	34
Montana	129	35
Nevada	30	19
New Jersey	721	67
New Mexico	36	22
Rhode Island	115	29
Washington	278	47
Wyoming	28	17
Total	1,791	

The classification of students by birth place is extended further in table 7, indicating that 13,833 are studying in the state of their birth and 10,382 elsewhere.

TABLE 7.—*Students Classified by Birth Place*

	Schools	Attending School in State of Birth	Birth Place Elsewhere
Alabama	1	62	39
Arkansas	1	174	108
California	4	369	652
Colorado	1	117	92
Connecticut	1	39	161
District of Columbia	3	90	618
Georgia	2	277	88
Illinois	5	1,054	1,010
Indiana	1	436	13
Iowa	1	248	60
Kansas	1	179	112
Kentucky	1	172	166
Louisiana	2	331	470
Maryland	2	197	453
Massachusetts	3	533	581
Michigan	2	380	326
Minnesota	1	339	150
Mississippi	1	36	5
Missouri	3	246	614
Nebraska	2	272	290
New Hampshire	1	6	34
New York	9	1,694	864
North Carolina	3	143	235
North Dakota	1	35	13
Ohio	3	611	254
Oklahoma	1	145	81
Oregon	1	103	150
Pennsylvania	6	1,354	960
South Carolina	1	147	13
South Dakota	1	21	21
Tennessee	3	269	540
Texas	2	548	129
Utah	1	41	18
Vermont	1	79	58
Virginia	2	278	265
West Virginia	1	39	12
Wisconsin	2	320	263
Canada	10	2,449	464
Totals	87	13,833	10,382

This is particularly significant in Illinois, where of the 2,064 students in five schools 1,010 were born outside the state. More than 900 born elsewhere are studying in Pennsylvania, while of 2,558 studying in New York only 864 were born elsewhere. Altogether, 42.9 per cent are studying in schools located in other than their birth state. Eliminating the 1,791 born in states having no medical school, there are still 8,591 of the total number of students, 24,215, studying outside their birth state.

A perusal of table 7 will show many instances wherein the number studying elsewhere far exceeds the number attending school in the state of birth. It also shows some states in which the contrary is the case, notably Arkansas, Georgia, Indiana, Iowa, Kansas, Minnesota, Ohio, South Carolina, Texas and Wisconsin.

TABLE 8.—*Resident and Nonresident Students*

	Resident Students	Nonresident Students	Totals
University of Alabama	73	28	101
University of Arkansas	226	56	282
University of California	241	4	245
College of Medical Evangelists	112	228	340
University of Southern California	185	14	199
Stanford University	192	45	237
University of Colorado	182	27	209
Yale University	48	152	200
Georgetown University	24	312	336
George Washington University	91	152	243
Howard University	10	119	129
Emory University	137	71	208
University of Georgia	156	1	157
Loyola University	208	142	350
Northwestern University	208	348	556
Rush Medical College	57	166	223
Division of Biological Sciences	116	181	297
University of Illinois	638	...	638
Indiana University	436	13	449
State University of Iowa	299	9	308
University of Kansas	264	27	291
University of Louisville	172	166	338
Louisiana State University	219	104	323
Tulane University of Louisiana	112	366	478
Johns Hopkins University	53	226	279
University of Maryland	195	176	371
Boston University	129	72	201
Harvard Medical School	121	396	517
Tufts College	313	83	396
University of Michigan	356	113	469
Wayne University	234	3	237
University of Minnesota	421	68	489
University of Mississippi	39	2	41
University of Missouri	72	...	72
St. Louis University	84	357	441
Washington University	133	214	347
Creighton University	39	207	246
University of Nebraska	295	21	316
Dartmouth Medical School	6	34	40
Albany Medical College	79	33	112
Long Island College of Medicine	298	65	363
University of Buffalo	227	30	257
Columbia University	206	200	406
Cornell University	165	121	286
New York Medical College	189	85	274
New York University	385	110	495
University of Rochester	101	87	188
Syracuse University	140	37	177
University of North Carolina	46	18	64
Duke University	53	210	263
Wake Forest College	44	7	51
University of North Dakota	46	2	48
University of Cincinnati	197	96	293
Western Reserve University	199	67	266
Ohio State University	306	...	306
University of Oklahoma	220	6	226
University of Oregon	169	84	253
Hahnemann Medical College	292	261	553
Jefferson Medical College	288	205	493
Temple University	271	177	448
University of Pennsylvania	302	184	486
Woman's Medical College	38	62	100
University of Pittsburgh	233	1	234
Medical College of South Carolina	147	13	160
University of South Dakota	30	12	42
University of Tennessee	217	208	425
Meharry Medical College	4	179	183
Vanderbilt University	80	121	201
Baylor University	266	34	300
University of Texas	377	...	377
University of Utah	52	7	59
University of Vermont	104	33	137
University of Virginia	174	72	246
Medical College of Virginia	129	168	297
West Virginia University	49	2	51
University of Wisconsin	254	16	270
Marquette University	145	168	313
Totals	13,418	7,884	21,302
Totals for 1937-1938	13,518	8,069	21,587

One may not conclude that all of those attending schools in other than the state in which they were born are nonresidents; but, since requirements for residence differ widely among the schools, comparable figures based on residence are not obtainable.

RESIDENT AND NONRESIDENT STUDENTS

The number of resident and nonresident students according to each school's definition of the word "resident" is given for each medical school in the United States in table 8. Among state universities, as well as other schools, there is a variation in the definition of the term. In some universities this is determined by the legal or permanent residence of the student, parents or guardian only, while in some schools continuous residence for six months and for one, two or three years just prior to the student's application for enrolment is also required. Others require the student to be a voter, parents' home in the state established prior to beginning of premedical work, the student a taxpayer or a dependent of a taxpayer regardless of whether he resides in the state, self-supporting student, and each case determined by attorney after consideration of birth, citizenship, residence of parents, and so on. Of these methods the most common is the determination of residence by ascertaining whether the student, parents or guardian has been a bona fide resident for a period not less than six months. This requirement is in force in sixteen universities. In many schools also a student coming into the state for educational purposes only and establishing residence would not be so considered. Among other than state universities the term is defined mostly by the home address of the student or the legal residence of the parents or guardian. In one of these schools a student is considered a resident if he lives in the state.

On the basis of these factors, in the sixty-seven approved medical schools and the ten approved schools of the basic medical sciences in the United States there were 13,418 students reported as residents and 7,884 as nonresidents, a total of 21,302. The state university enrolling the greatest number of nonresidents was the University of Tennessee College of Medicine, which had 217 residents and 208 nonresidents, while at the University of Illinois College of Medicine, the University of Missouri School of Medicine, Ohio State University College of Medicine and the University of Texas School of Medicine no nonresidents were registered, and only one of the 156 students of the University of Georgia School of Medicine was a nonresident.

Among other than state universities it is of interest to note the resident and nonresident enrolment. Many of the schools select their students from residents of the state. This is particularly significant at Southern California, Stanford, Emory, Wayne, Long Island, Buffalo, Syracuse, Pittsburgh and Baylor.

The figures in table 8 giving the number of residents and nonresidents and the preceding one classifying students by birth place show a similarity. Excluding the Canadian registration given in table 7, there were 11,384 students attending school in the state of their birth and 9,918 elsewhere, as compared with 13,418 whose legal residence is in the state in which they are pursuing their medical courses and 7,884 classified as nonresidents.

The nine medical schools and the one offering courses in the basic medical sciences reported 2,284 residents of Canada and 629 nonresidents. Their definition of a resident varied from students whose permanent address is within one of the provinces of Canada or the specific province in which the school is located to home address on registration and taxpayers. The greatest number of nonresidents in any one school were found at McGill University Faculty of Medicine, where 167 of the 456 students enrolled were nonresidents. This school has always obtained a large portion of its student body from the United States. At Dalhousie University Faculty of

Medicine there were eighty-four nonresidents in a student body of 179. All other institutions registered fewer than eighty-four nonresidents but more than twenty-two with one exception—the University of Saskatchewan School of Medical Sciences—with only three nonresidents.

Comparing the figures for Canada in tables 7 and 8 reveals, as in the United States, somewhat similar figures: 2,449 born in Canada and 464 elsewhere, compared with 2,284 residents and 629 nonresidents.

SCHOOLS, STUDENTS AND GRADUATES BY STATES

Medical schools are located in thirty-six states and the District of Columbia. In table 9 are tabulated the number of schools, students and graduates by states. New York with the largest number of schools, nine, naturally had the greatest number of students and

TABLE 9.—*Schools, Students and Graduates by States* *

	Schools	Students	Graduates
Alabama	1	101	...
Arkansas	1	282	72
California	4	1,021	273
Colorado	1	209	49
Connecticut	1	200	43
District of Columbia	3	708	159
Georgia	2	365	78
Illinois	5	2,064	586
Indiana	1	449	104
Iowa	1	308	86
Kansas	1	291	70
Kentucky	1	338	87
Louisiana	2	801	169
Maryland	2	650	161
Massachusetts	3	1,114	289
Michigan	2	706	178
Minnesota	1	489	123
Mississippi	1	41	...
Missouri	3	860	218
Nebraska	2	562	127
New Hampshire	1	40	...
New York	9	2,558	606
North Carolina	3	378	64
North Dakota	1	48	...
Ohio	3	865	216
Oklahoma	1	226	52
Oregon	1	253	63
Pennsylvania	6	2,314	567
South Carolina	1	160	43
South Dakota	1	42	...
Tennessee	3	809	173
Texas	2	677	162
Utah	1	59	...
Vermont	1	137	38
Virginia	2	543	112
West Virginia	1	51	...
Wisconsin	2	583	121
Totals	77	21,302	5,089

* Excluding fifth or intern year students.

graduates, 2,558 and 606 respectively; Pennsylvania with six schools had 2,314 students and 567 graduates; Illinois with five schools, 2,064 students and 586 graduates, ranks third, while Massachusetts with three schools, 1,114 students and 289 graduates and California with four schools, 1,021 students and 273 graduates complete the group of states having a medical school enrolment over 1,000.

In the seventy-seven schools, including those that offer courses in the basic medical sciences only, there were 21,302 students and 5,089 graduates. Students interning as a requirement for the degree, or fifth year students, are not included in this figure. Neither are part time, special and graduate students. The greatest number of graduates in any one state were the 606 who completed their courses in New York schools. There were 586 from Illinois schools and 567 from schools in Pennsylvania. Four other states had more than 200 graduates—California, Massachusetts, Missouri and Ohio. Eleven states had more than 100 but less than 200 graduates. All others had less than 100.

HOSPITAL INTERNSHIPS

The medical schools and licensing boards requiring a hospital internship for the M.D. degree and state licensure, respectively, are shown in tables 10 and 11. Thirteen schools in the United States and four in Canada exact the internship requisite. Several medical schools will accept research or other clinical work in

TABLE 10.—*Internship Required by Medical Schools*

University of California Medical School
College of Medical Evangelists
University of Southern California School of Medicine
Stanford University School of Medicine
Loyola University School of Medicine
Northwestern University Medical School
University of Illinois College of Medicine
Louisiana State University Medical Center
Wayne University College of Medicine
University of Minnesota Medical School
Duke University School of Medicine*
University of Cincinnati College of Medicine
Marquette University School of Medicine
University of Manitoba Faculty of Medicine
Dalhousie University Faculty of Medicine
McGill University Faculty of Medicine
University of Montreal Faculty of Medicine

* Two year internship required.

lieu of hospital service. The University of Minnesota Medical School was the first school to require this added training. Since 1915 the M.D. degree has been conditioned on an internship. Rush Medical College, which had required the internship for the M.D. degree since 1919, and the School of Medicine of the Division of the Biological Sciences, University of Chicago, since 1930, discontinued this formal requirement in 1936. McGill University Faculty of Medicine reorganized its medical curriculum into a course of five years, including an internship replacing the former course spread over five academic years of seven and one-half months each by a course covering four years of nine months. The fifth year may be spent in an internship in an approved hospital or in further medical study at McGill or in another medical school approved by it. The changed curriculum was inaugurated for the freshman class of 1936-1937. It will not affect the students who began their course under the former system.

The M.D. degree is granted after completion of the senior year by Duke University School of Medicine, but all graduates are required to spend at least two years in hospital or laboratory work after graduation.

TABLE 11.—*Internship Required by Medical Licensing Boards of All Candidates* *

Alabama	Michigan	Rhode Island
Alaska	New Hampshire	South Dakota
Delaware	New Jersey	Utah
District of Columbia	North Dakota	Vermont
Idaho	Oklahoma	Washington
Illinois	Oregon	West Virginia
Iowa	Pennsylvania	Wisconsin
Louisiana	Puerto Rico	Wyoming

* Some states require the internship of graduates of medical faculties abroad and reciprocity or endorsement applicants.

Twenty-one states, the District of Columbia, Alaska and Puerto Rico require that all applicants for licensure possess a hospital internship. The first state exacting this requirement was Pennsylvania in 1914. The requirement in Alabama and Louisiana became effective in 1939. In addition, other states require the internship of graduates of medical faculties abroad and reciprocity or endorsement applicants.

Some of the medical schools and licensing boards have their own list of hospitals acceptable for intern training but in general follow the Council's list of hospitals approved for internships. A revised edition will be found beginning on page 832.

TABLE 12.—*Distribution by Sex*

	Students		Graduates	
	Men	Women	Men	Women
University of Alabama	96	5	..	..
University of Arkansas	274	8	69	3
University of California	220	25	56	7
College of Medical Evangelists	314	26	101	8
University of Southern California	195	4	41	3
Stanford University	224	13	56	1
University of Colorado	197	12	45	4
Yale University	187	13	39	4
Georgetown University	336	..	73	..
George Washington University	225	18	53	3
Howard University	117	12	28	2
Emory University	208	..	47	..
University of Georgia	148	9	29	2
Loyola University	338	12	106	4
Northwestern University	537	19	151	3
Rush Medical College	209	14	104	7
Division of Biological Sciences	273	24	43	8
University of Illinois	595	43	154	6
Indiana University	426	23	95	9
State University of Iowa	298	10	86	..
University of Kansas	283	8	68	2
University of Louisville	328	10	86	1
Louisiana State University	310	13	56	3
Tulane University of Louisiana	460	18	106	4
Johns Hopkins University	248	31	63	10
University of Maryland	356	15	87	1
Boston University	182	19	49	..
Harvard Medical School	517	..	130	..
Tufts College	375	21	107	3
University of Michigan	428	41	90	12
Wayne University	226	11	73	3
University of Minnesota	455	34	118	5
University of Mississippi	39	2	...	..
University of Missouri	71	1	...	..
St. Louis University	441	..	123	..
Washington University	324	23	93	2
Creighton University	233	13	56	1
University of Nebraska	305	11	68	2
Dartmouth Medical School	40	..	..	..
Albany Medical College	107	5	21	2
Long Island College of Medicine	341	22	86	4
University of Buffalo	243	14	59	4
Columbia University	376	30	82	7
Cornell University	261	25	58	5
New York Medical College	258	16	62	4
New York University	454	41	112	12
University of Rochester	175	13	40	3
Syracuse University	165	12	44	1
University of North Carolina	59	5	..	..
Duke University	256	7	63	1
Wake Forest College	49	2	..	..
University of North Dakota	47	1	..	..
University of Cincinnati	278	15	67	4
Western Reserve University	252	14	59	5
Ohio State University	231	15	75	6
University of Oklahoma	215	11	50	2
University of Oregon	239	14	60	3
Hahnemann Medical College	553	..	134	..
Jefferson Medical College	493	..	122	..
Temple University	415	33	110	7
University of Pennsylvania	469	17	117	5
Woman's Medical College	...	100	...	21
University of Pittsburgh	225	9	48	3
Medical College of South Carolina	151	9	40	3
University of South Dakota	40	2	..	..
University of Tennessee	409	16	91	3
Meharry Medical College	178	5	28	2
Vanderbilt University	193	8	47	2
Baylor University	286	14	66	4
University of Texas	345	32	81	11
University of Utah	57	2	..	..
University of Vermont	132	5	36	2
University of Virginia	241	5	50	1
Medical College of Virginia	262	35	53	8
West Virginia University	48	3	..	..
University of Wisconsin	254	16	51	1
Marquette University	303	10	68	1
University of Alberta	207	16	30	2
University of Manitoba	197	15	52	4
Dalhousie University	178	1	36	1
Queen's University	282	..	43	..
University of Western Ontario	197	15	25	4
University of Toronto	738	60	118	11
McGill University	428	28	96	3
University of Montreal	197	8	29	..
Laval University	297	2	32	..
University of Saskatchewan	40	7	..	..
Total	22,919	1,296	5,290	285

During 1938-1939 there were 1,152 students in the United States and 121 in Canada reported as interns, a total of 1,273.

Figures computed in 1938 indicated that, with the exception of one, every medical school had more than 90 per cent of its graduates serving internships, and in fifty schools 100 per cent interned. Excluding those schools that required the internship for graduation, 98 per cent of the 1938 graduates have obtained or are obtaining this added experience.

DISTRIBUTION BY SEX

Students and graduates in the United States and Canada classified according to sex are shown in table 12. Seventy-eight schools had both men and women students, of which sixty-four had women graduates. Women were enrolled in ten of the eleven schools offering courses of the basic medical sciences. Altogether there were 22,919 men and 1,296 women students, and 5,290 men and 285 women graduates. Of these, 20,158 male students and 4,829 graduates were in schools in the United States and 2,761 and 461 respectively in Canada. Likewise there were 1,144 women students and 260 graduates in the United States and 152 students and twenty-five graduates in Canada. Of the 22,919 and 5,290 male students and graduates, 2,588 and 629 respectively were enrolled in schools in the United States which are not coeducational or do not admit women, and 282 and forty-three in Canada. An average of sixteen women students were enrolled in the seventy-eight coeducational institutions in the United States and Canada and four graduates from sixty-four colleges.

WOMEN IN MEDICINE IN THE UNITED STATES

During 1938-1939 there were 1,144 women studying medicine in the United States. The percentage of women to all students for the academic year 1938-1939 was 5.4. There were 260 graduates, twenty-three more than were graduated in 1938. Of the women matriculants, 100 were in attendance at the one medical college for women, while 1,044 were matriculated in sixty-nine coeducational schools. From the Woman's Medical College of Pennsylvania twenty-one were graduated, while 239 secured their degrees from coeducational institutions. These data are referred to in table 13. Of interest also is the fact that ten schools enrolled more than twenty-five women. In the fifteen years since 1925, 3,268 women have graduated in medicine. The Council's list of hospitals approved for internships include many that offer internships open to women. Statistics

TABLE 13.—*Women in Medicine in the United States*

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1905	1,073	4.1	219	4.0
1910	907	4.0	116	2.6
1915	592	4.0	92	2.6
1920	818	5.8	122	4.0
1925	910	5.0	204	5.1
1926	935	5.0	212	5.4
1927	964	4.9	189	4.7
1928	929	4.5	207	4.9
1929	925	4.4	214	4.8
1930	955	4.4	204	4.5
1931	990	4.5	217	4.6
1932	955	4.3	208	4.2
1933	1,056	4.7	214	4.4
1934	1,020	4.5	211	4.2
1935	1,077	4.7	207	4.1
1936	1,133	5.0	246	4.7
1937	1,113	5.1	238	4.4
1938	1,161	5.4	237	4.6
1939	1,144	5.4	260	5.1

compiled on the basis of the American Medical Directory in 1938 revealed that there were 7,470 women physicians in the United States.

Women are admitted to all medical schools of the United States except the following: Georgetown, Emory, Harvard, St. Louis, Dartmouth, Hahnemann and Jefferson.

PART TIME, SPECIAL AND GRADUATE STUDENTS IN MEDICAL SCHOOLS, 1938-1939

Part time, special and graduate students in addition to the regularly enrolled students were pursuing medical subjects in forty-seven medical schools in the United States and six in Canada. This group consists of 117 part time, 251 special and 1,461 graduate students. These data are contained in table 14.

TABLE 14.—*Part Time, Special and Graduate Students in Medical Schools 1938-1939*

	Part Time	Special	Graduate
Stanford University	2	..	..
University of California	..	..	80
University of Southern California	..	12	12
University of Colorado	..	..	23
George Washington University	..	..	1
Howard University	2	..	17
Emory University	1	..	..
University of Georgia	4	..	..
Loyola University	..	1	..
Northwestern University	..	79	106
Rush Medical College	..	..	6
Division of Biological Sciences	..	38	..
University of Illinois	..	..	221
Indiana University	..	4	1
State University of Iowa	..	..	19
University of Kansas	10	24	2
Louisiana State University	12	..	..
Johns Hopkins University	5	13	10
University of Maryland	..	2	..
Boston University	..	2	6
Tufts College	..	4	..
University of Michigan	7	2	2
Wayne University	10	..	76
University of Minnesota	3	..	397
University of Mississippi	6	..	..
Washington University	2	1	..
Creighton University	..	4	..
University of Nebraska	..	..	11
Columbia University	..	..	41
Cornell University	..	1	7
New York Medical College	..	..	7
New York University	6	8	163
University of Buffalo	20	4	..
University of North Carolina	3	2	20
University of Cincinnati	..	1	..
University of Oklahoma	1	3	6
University of Oregon	..	4	15
Temple University	1	..	21
University of Pittsburgh	5	..	..
University of South Dakota	1	..	..
Meharry Medical College	..	1	16
University of Tennessee	..	13	7
Vanderbilt University	4	..	94
Baylor University	5	..	..
University of Texas	..	3	..
University of Utah	3	..	..
Marquette University	2	3	6
McGill University	..	..	2
Queen's University	..	..	2
University of Manitoba	..	..	2
University of Montreal	..	..	27
University of Toronto	2	20	35
University of Western Ontario	..	2	..
Totals	117	251	1,461

The part time students were enrolled in twenty-four schools, twenty-three in the United States and one in Canada. The largest group enrolled in any one school were twenty studying at the University of Buffalo School of Medicine. Twelve were registered in Louisiana State University and ten each at the University of Kansas and Wayne University. Less than seven were enrolled in twenty schools.

The 251 special students represented twenty-four schools in the United States and two in Canada. The greatest number (seventy-nine) were at Northwestern University School of Medicine; at the School of Medicine of the Division of the Biological Sciences of the University of Chicago thirty-eight were in attendance; at the University of Kansas twenty-four, and at the University of Toronto twenty. All other schools registered fewer than fifteen.

Students pursuing subjects leading to higher degrees were studying in twenty-nine schools in the United States and five in Canada. Altogether there were 1,461, of whom more than 100 were studying in each of four schools, the greatest number (397) having been enrolled at the University of Minnesota.

The following schools matriculated these three types of students: Universities of Kansas, Johns Hopkins, Michigan, North Carolina, Oklahoma, Marquette, Toronto and New York University.

Among Canadian schools, two part time, twenty-two special and sixty-eight graduate students were enrolled.

SCHOOLS, STUDENTS AND GRADUATES IN THE UNITED STATES, 1905-1939

The number of medical schools, students and graduates for five year intervals from 1905 to 1920 and for each year since is shown in table 15. In 1905 in the 160 schools then existing there were 26,147 students. For the college session just ended there were 21,302. This tabulation includes data for only those taking medical courses leading to the M.D. degree and does not include part time and special students, though their work may later be accepted for the M.D. degree since they are not reported by medical schools as candidates for the M.D. degree. Omitted from these figures also are university graduates majoring in the medical school but not working toward an M.D. degree. As will be noted, in the ten years 1910 to 1920 there was a decrease in the enrolment of more than 7,000, while from 1921 to 1935 there was a continuous increase and since 1935 there has been a gradual decrease. In 1939 there were 285 fewer enrolled than in 1938 and 1,586 than 1935. The number of students admitted in 1938 was 977 fewer than in 1936 and 1,301 fewer than in 1935. The number of medical graduates, however, may not be decreased, since more careful selection will doubtless diminish the number of students who fail to complete their course because of poor scholarship.

Referring again to table 15, the total number of graduates in 1939 was 5,089, 105 fewer than in 1938, 112 less than in 1935 and 517 fewer than 1905. With

TABLE 15.—*Schools, Students and Graduates in the United States—1905-1939*

Year	Schools	Students*	Graduates
1905	160	26,147	5,606
1910	131	21,526	4,440
1915	96	14,891	3,536
1920	85	13,798	3,047
1921	83	14,466	3,186
1922	81	15,635	2,520
1923	80	16,960	3,120
1924	79	17,728	3,562
1925	80	18,200	3,974
1926	79	18,840	3,962
1927	80	19,662	4,035
1928	80	20,545	4,262
1929	76	20,878	4,446
1930	76	21,597	4,565
1931	76	21,982	4,735
1932	76	22,135	4,936
1933	77	22,466	4,895
1934	77	22,799	5,035
1935	77	22,888	5,101
1936	77	22,564	5,183
1937	77	22,095	5,377
1938	77	21,587	5,194
1939	77	21,302	5,089

* Include figures for schools of the basic medical sciences

the exception of the slight decrease in the number of graduates in 1933 as compared with previous years, there was a steady increase from 1926 to 1937 and a decrease in 1938 and 1939.

TABLE 16.—*Graduates with Baccalaureate Degrees*

	Graduates	Degrees
University of Arkansas School of Medicine	72	22
University of California Medical School	63	46
College of Medical Evangelists	109	36
University of Southern California School of Medicine	44	38
Stanford University School of Medicine	57	57
University of Colorado School of Medicine	49	27
Yale University School of Medicine	43	41
Georgetown University School of Medicine	73	61
George Washington University School of Medicine	56	29
Howard University College of Medicine	30	23
Emory University School of Medicine	47	18
University of Georgia School of Medicine	31	18
Loyola University School of Medicine	110	27
Northwestern University Medical School	154	108
Rush Medical College	111	97
Division of Biological Sciences	51	49
University of Illinois College of Medicine	160	11
Indiana University School of Medicine	104	24
State University of Iowa College of Medicine	86	6
University of Kansas School of Medicine	70	43
University of Louisville School of Medicine	87	31
Louisiana State University School of Medicine	59	21
Tulane University of Louisiana School of Medicine	110	50
Johns Hopkins University School of Medicine	73	73
University of Maryland School of Medicine	88	53
Boston University School of Medicine	49	41
Harvard Medical School	130	123
Tufts College Medical School	110	109
University of Michigan Medical School	102	77
Wayne University College of Medicine	76	74
University of Minnesota Medical School	123	29
St. Louis University School of Medicine	123	62
Washington University School of Medicine	95	74
Creighton University School of Medicine	57	18
University of Nebraska College of Medicine	70	41
Albany Medical College	23	23
Long Island College of Medicine	90	84
University of Buffalo School of Medicine	63	27
Columbia Univ. College of Physicians and Surgeons	89	87
Cornell University Medical College	63	63
New York Medical College	66	58
New York University College of Medicine	124	124
Univ. of Rochester School of Medicine and Dentistry	43	40
Syracuse University College of Medicine	45	38
Duke University School of Medicine	64	44
University of Cincinnati College of Medicine	71	44
Western Reserve University School of Medicine	64	64
Ohio State University College of Medicine	81	67
University of Oklahoma School of Medicine	52	25
University of Oregon Medical School	63	63
Hahnemann Medical College	134	84
Jefferson Medical College of Philadelphia	122	122
Temple University School of Medicine	117	84
University of Pennsylvania School of Medicine	122	113
Woman's Medical College of Pennsylvania	21	18
University of Pittsburgh School of Medicine	51	38
Medical College of the State of South Carolina	43	28
University of Tennessee College of Medicine	94	48
Meharry Medical College	30	25
Vanderbilt University School of Medicine	49	49
Baylor University College of Medicine	70	33
University of Texas School of Medicine	92	55
University of Vermont College of Medicine	38	31
University of Virginia Department of Medicine	51	26
Medical College of Virginia	61	46
University of Wisconsin Medical School	52	52
Marquette University School of Medicine	69	26
University of Alberta Faculty of Medicine	32	16
University of Manitoba Faculty of Medicine	56	13
Dalhousie University Faculty of Medicine	37	17
Queen's University Faculty of Medicine	43	..
University of Western Ontario Medical School	29	12
University of Toronto Faculty of Medicine	129	30
McGill University Faculty of Medicine	99	74
University of Montreal Faculty of Medicine	29	25
Laval University Faculty of Medicine	32	32
Totals	5,575	3,605

In the seventy-seven medical schools in the United States, including the schools of the basic medical sciences, there were 21,302 students and 5,089 graduates.

GRADUATES WITH BACCALAUREATE DEGREES

From the figures contained in table 16 it can be noted that 3,605 of the 5,575 graduates of medical schools in the United States and Canada since July 1, 1938, also hold baccalaureate degrees while only five schools required a degree for admission. All the graduates of Stanford, Johns Hopkins, Albany Medical College, Cornell, New York University, Western Reserve, Oregon, Jefferson Medical College, Vanderbilt, Wisconsin and Laval held baccalaureate degrees. Johns Hopkins, Albany Medical College, Jefferson Medical College and Laval University have a degree requirement. The school graduating the fewest with liberal arts degrees was Indiana University School of Medicine, where six of the eighty-six graduates also had baccalaureate degrees. One school, Queen's University, had no graduates in 1939 with arts degrees. A percentage of 64.7 of all graduates held such degrees.

STUDENTS BY YEARS, 1930-1939

The number of students enrolled in preclinical and clinical classes in the medical schools of the United States by years for each session from 1930-1931 to 1938-1939 inclusive is shown in table 17. The total attendance for the first preclinical year for the session 1938-1939 was 5,754, thirty-seven fewer than the number enrolled in 1937-1938. Since the year 1933-1934, when 6,457 were matriculated, there has been a reduction in this class of 703. The total attendance for the second preclinical year was 5,160 and for the two clinical years 4,947 and 4,921 respectively. The two

TABLE 17.—*Students in the United States by Years 1930-1939*

	Preclinical		Clinical		Intern Year	Total
1930-1931	6,456	5,538	5,080	4,908	1,025	23,007
1931-1932	6,260	5,462	4,932	4,885	1,067	23,302
1932-1933	6,426	5,479	5,017	4,948	1,106	23,572
1933-1934	6,457	5,571	4,988	4,937	1,183	23,982
1934-1935	6,356	5,624	5,142	4,905	1,233	24,121
1935-1936	6,005	5,458	5,230	5,020	1,213	23,777
1936-1937	5,910	5,269	5,140	5,158	1,255	23,350
1937-1938	5,791	5,225	4,986	5,036	1,132	22,719
1938-1939	5,754*	5,160*	4,947*	4,921*	1,152	22,434

* Excluding enrolment figures for the two medical schools of the University of Chicago, i. e., Rush Medical College 223 and The Division of the Biological Sciences 297, a total of 520.

medical schools of the University of Chicago are not operated under the promotion by class system but on an individual plan making it impossible for the schools to report their students in this manner and accordingly they are not included in the figures by classes, but their enrolment is included in the total. Estimates, however, have been included in the figures for 1930-1931 and for the years 1933-1934 and 1934-1935; and in 1935-1936 the enrolment for Duke University also was omitted. At the School of Medicine of the Division of the Biological Sciences of the University of Chicago there were 297 students and at Rush Medical College 223, a total of 520. The fifth year can be spent in intern or research work. There were 265 fewer students enrolled than in 1937-1938, 896 fewer than 1936-1937 and 1,667 less than in 1934-1935. The freshman enrolment decreased thirty-seven, the sophomore enrolment sixty-five, juniors thirty-nine and seniors 115, while those interning or engaged in research increased twenty. These figures are exclusive of the figures for the two schools referred to.

STUDENTS LEAVING SCHOOL DURING FIRST TWO YEARS

Of the 6,356 students selected for the freshman class for the session 1934-1935, it is interesting to note that 898 failed or for other reasons did not undertake sophomore studies and further that 1,216 had dropped out by the end of the second medical year. A comparison of the figures for 1934-1935 with those of

1936-1937 is made inasmuch as those entering in the former year would be completing their preclinical course in the latter year. These data are shown below.

Class Entering 1934		Class Entering 1936
Freshman enrolment	6,356	5,910
Junior enrolment	5,140	4,947
Loss during 1st 2 years	1,216	963
	963	
	253	fewer students lost during first two years by the class entering in 1936.

While 446 fewer freshmen were enrolled in 1936-1937 than in 1934-1935 there were also 253 fewer students who had discontinued their course by the end of the second year. From these figures it is clear that a decrease in the size of the entering class does not mean a corresponding reduction of the number of students in the clinical years. Further, the failure of approximately 20 per cent of the students to continue beyond the second year suggests that many of those who were admitted lacked the ability to meet the exacting requirements of the medical curriculum. Decreases in the entering classes since 1934-1935 may indicate a more careful selection of students which will result in a smaller number dropping out before the beginning of the junior year and a larger percentage of the class pursuing their course to graduation.

NEGRO STUDENTS AND GRADUATES

Negro students enrolled in medical schools in the United States and Canada for the session 1938-1939 are recorded by classes in table 18. Totals for the session 1937-1938 are shown for comparison. For the last session there were 350 students and sixty-nine graduates. The total number of students for 1938-1939 was twenty-two fewer than for the session 1937-1938, but there were eight more graduates than the previous year. The only medical school for Negro youth, Meharry Medical College, matriculated 183 students and had thirty graduates. At Howard University College of Medicine they comprise a majority of those in attendance and for this session 122 of a class of 129 and twenty-eight of the thirty graduates were Negroes. These two schools graduated 84 per cent of the Negro students. Nine other schools graduated eleven. In twenty schools in the United States, exclusive of Meharry and Howard, forty-one students were enrolled. There were four Negroes in two Canadian schools. The enrolment by classes in all schools was first year 112, second year eighty-seven, third year eighty-four and fourth year sixty-seven, a total of 350.

TABLE 18.—*Negro Students and Graduates*

	Enrolment by Classes During 1938-1939					
	1st Year	2d Year	3d Year	4th Year	Totals	Graduates
College of Medical Evangelists	1	..	..	..	1	2
Howard University College of Medicine	38	25	31	28	122	28
Loyola University School of Medicine	1	..	..	..	1	1
Univ. of Chicago, Div. of the Biological Sciences	1	..	..	1	2	1
University of Illinois College of Medicine	2	1	..	1	4	1
Indiana University School of Medicine	..	2	1	..	3	..
University of Kansas School of Medicine	..	1	1	..	2	..
Boston University School of Medicine	..	..	..	2	2	2
Tufts College Medical School	..	..	1	..	1	..
University of Michigan Medical School	2	4	1	..	7	..
Wayne University College of Medicine	..	..	2	2	4	1
University of Minnesota Medical School	..	..	..	1	1	..
Dartmouth Medical School	..	1	..	..	1	..
Columbia Univ. College of Phys. and Surgs	..	..	1	..	1	..
New York Medical College	..	1	..	..	1	..
New York University College of Medicine	2	..	1	..	3	..
Ohio State University College of Medicine	1	1	..	1	3	1
Western Reserve University School of Medicine	..	..	..	1	1	1
Temple University School of Medicine	..	..	1	..	1	..
University of Pennsylvania School of Medicine	1	..	..	..	1	..
Woman's Medical College	1	..	..	..	1	..
Meharry Medical College	62	49	42	30	183	30
McGill University Faculty of Medicine	..	1	1	..	2	..
University of Toronto Faculty of Medicine	..	1	1	..	2	..
University of Montreal Faculty of Medicine	..	..	..	..	..	1
Totals	112	87	84	67	350	69
Totals for 1937-1938	126	104	77	64	372	61

TABLE 19.—*Fees, 1938-1939—United States and Canada* *

	Schools
Under $99	3
$100 to 199	8
200 to 299	22
300 to 399	16
400 to 499	23
500 or over	15
Total	87

* Based on fees charged resident students.

According to figures computed from the 1938 American Medical Directory, there were 3,392 Negro physicians in the United States.

MEDICAL SCHOOL FEES

In table 19 the eighty-seven medical schools of the United States and Canada, including those offering courses in the basic medical sciences, have been grouped according to the tuition fees charged. To arrive at the figures listed, an average was computed of the resident fees for each school. Three schools have fees under $100. These were the Universities of North Dakota, Oklahoma and Texas. Fifteen schools had fees over $500, namely College of Medical Evangelists, Yale, George Washington, Johns Hopkins, Tufts, Columbia, Cornell, Long Island, New York Medical College, New York University, Syracuse, Buffalo, Hahnemann, Pennsylvania and Pittsburgh. Thirty schools in the United States and five in Canada made an additional charge for nonresidents ranging from $37.50 each year by the University of Illinois College of Medicine to $400 exacted by Louisiana State University. In 1938 there were four schools in the first bracket under $99, nine had fees of from $100 to $199, twenty-three from $200 to $299, sixteen from $300 to $399, twenty-two from $400 to $499 and thirteen over $500.

The lowest nonresident fee in the United States was $37.50. One school in Canada has a nonresident fee of $5 for the first year and $10 for the second, third and fourth years. Fourteen schools in the United States and Canada have a nonresident fee of $99 or less, seventeen have fees between $100 and $199, seven have fees from $200 to $299 and two have fees of $300 and $400 respectively.

The average resident fee charged in medical schools in the United States was $353, whereas in 1938 it was computed at $342.

CITIZENS OF THE UNITED STATES ENROLLED IN FACULTIES OF MEDICINE ABROAD

An inquiry into the number of citizens of the United States studying medicine in faculties of medicine abroad has been carried on by the Council on Medical Education and Hospitals since 1931, when it became evident that great numbers were going to Europe to pursue medical courses. It has been almost impossible to obtain figures for the session 1938-1939. Returns were received from forty-four institutions from which there were 680

students and 142 graduates. These figures are undoubtedly incomplete and many more citizens of the United States are studying abroad than the figures for 1938-1939 here given would indicate. The enrolment of students in foreign countries for each session since 1930-1931, including the incomplete figures for 1938-1939, are shown in table 21. The largest numbers were enrolled in Austria, Germany, Italy, Scotland and Switzerland.

TABLE 20.—*Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1930-1938*

Year	Number Examined	Passed	Percentage Failed
1930	167	92	44.9
1931	158	91	42.4
1932	182	96	47.3
1933	200	129	35.5
1934	285	170	40.2
1935	437	303	30.7
1936	588	382	35.0
1937	920	637	30.8
1938	1,166	716	38.6
Totals	4,103	2,616	36.3

TABLE 21.—*Citizens of the United States Enrolled in Faculties of Medicine Abroad—1930-1939*

	1930-1931		1931-1932		1932-1933		1933-1934		1934-1935		1935-1936		1936-1937		1937-1938		1938-1939	
	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course
Argentina	..	..	..	..	..	..	..	..	..	..	2	0	2	0	2	0	..	..
Austria	114	3	175	6	271	3	253	9	235	6	183	45	185	54	172	45	..	..
Belgium	3	0	4	1	10	1	11	0	19	3	15	3	13	1	6	0	12	1
Brazil	..	..	..	..	..	..	2	1	1	0	1	0	2	0	2	0	..*	..*
China	..	..	..	..	12	0	15	0	18	1	19	1	18	1	24	1	7*	1*
Colombia	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..
Czechoslovakia	2	0	4	0	19	0	7	0	10	0	11	3	13	4	7	3	2*	0*
Dominican Republic	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..
England	52	2	61	4	57	1	69	4	78	20	60	30	47	17	29	6	36	4
Estonia	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	1	..*	..*
Finland	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
France	25	2	62	6	78	5	86	2	89	4	75	4	40	14	11	9	18*	5*
Germany	72	1	189	5	439	42	331	8	246	25	204	28	245	109	87	32	45*	29*
Greece	..	..	..	..	4	1	9	0	13	0	15	0	18	0	18	0	..*	..*
Hungary	9	1	15	2	13	1	25	1	23	0	12	0	27	4	22	8	..*	..*
Ireland	14	1	21	0	20	0	4	1	6	1	7	4	7	2	4	4	9*	0*
Italy	78	11	155	4	282	14	258	25	286	30	265	65	265	65	214	47	54*	17*
Japan	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lebanon	16	2	8	0	7	0	11	2	13	2	15	3	19	0	28	0	25	6
Lithuania	..	..	4	0	4	0	2	0	2	0	2	0	2	0	..	..	..	..
Mexico	1	0	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Netherlands	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	1	0
Netherland Indies	..	..	..	..	1	0	1	0	1	0	..	..	2	0	..	..	..	..
Poland	2	0	3	0	9	0	14	4	12	1	9	1	14	1	16	0	9*	2*
Portugal	..	..	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..
Scotland	256	19	286	25	416	9	444	48	476	71	369	48	386	80	525	51	401	53*
South Africa, Union of	..	..	1	0	..	..	..	..	..	..	..	..	..	..	1	0	..*	..*
Spain	..	..	..	..	..	..	..	..	..	..	..	..	3	0	..	..	..	..
Switzerland	65	4	214	1	405	10	351	8	396	54	366	98	316	143	123	98	56*	24*
Venezuela	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0
Wales	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	0
Yugoslavia	..	..	2	1	5	1	7	0	11	0	7	0	6	0	6	0	..*	..*
Totals	710	46	1,206	56	2,052	88	1,903	113	1,937	218	1,637	333	1,631	495	1,298	305	680*	142*

* Incomplete figures.

A study is also being carried on of the license record of foreign physicians.[5] Table 20, recording the number of graduates of foreign medical faculties examined by licensing boards in the United States in nine years and the percentage failing, is of interest. This table makes no differentiation between United States citizens and those foreign born.

The figures indicate that the greatest number were enrolled in the so-called extramural schools of Ireland and Scotland. As a result of an inspection made of these schools in November 1938, the New York State Education Department in January 1939 directed that such registrations cease for all students hereafter admitted to these institutions and that the department no longer issue qualifying cerificates to American students seeking admission to these schools. The department will continue to recognize, however, those already having received the qualifying certificate and already engaged in study in these schools. The schools referred to are the School of Medicine of the Royal Colleges, Edinburgh; Anderson College of Medicine, Glasgow; St. Mungo's College Medical School, Glasgow, and the Schools of Surgery, Royal College of Surgeons in Ireland, Dublin.

Data were also published in the State Board Number [5] indicating the requirements of candidates for medical licensure holding credentials from medical schools outside the United States and Canada. In order to qualify for licensure, many of the foreign graduates are seeking or are serving internships in approved hospitals. In 1938, 149 approved hospitals in twenty-nine states reported a total of 312. The Council has adopted the following resolution in an effort to assist hospitals in solving the perplexing problems associated with the selection of graduates from foreign schools:

Resolved, That, when suitable graduates of class A schools in the United States and Canada are not available, hospitals approved for intern training may accept graduates of European universities who have passed parts I and II of the examinations of the National Board of Medical Examiners.

The Council on Medical Education and Hospitals does not grade or classify medical schools outside the United States and Canada. No opportunity is afforded for visiting and inspecting such schools, nor are official reports received from them. The Council therefore has no evidence on which to base a rating.

5. J. A. M. A. **112:** 1720 (April 29) 1939.

GRADUATE MEDICAL EDUCATION

Continuation Study for Practicing Physicians in the United States: 1938-1939

The House of Delegates of the American Medical Association in May 1939 concurred in the opinion that "The attention of the constituent state societies of this Association should be called to the great importance of controlling the direction of programs of postgraduate education. The reference committee herewith recommends that the House of Delegates empower the Council on Medical Education and Hospitals to carry out this purpose."

This recommendation of the Reference Committee on Medical Education emphasized the importance of the present study of graduate medical education which the Council on Medical Education and Hospitals voted to undertake in February 1936. In May of that year the House of Delegates approved the Council's proposed study and in February 1937 the Board of Trustees authorized additional personnel to examine programs of continuation study for practicing physicians in operation in the various states. Since October 1937 thirty-six states and the District of Columbia have been visited and the opportunities for continuing medical education have been reviewed. States included to date are Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Virginia, West Virginia and Wisconsin. Progress reports of graduate activities in twenty-three states appeared in the Educational Number of THE JOURNAL, Aug. 27, 1938, and other reports have appeared from time to time in THE JOURNAL during the past year.[1] While subsequent reports will consider the graduate programs of other states, graduate courses in all states are reported herewith.

ORGANIZATION AND ADMINISTRATION

There were 109 opportunities for practicing physicians to engage in continuation study in forty-three states and the District of Columbia. Fifty courses outlined in table 1-A were of an itinerant character, in that the instruction was taken to the physician in or near his local community. Fifty-nine centers listed in table 1-B provided facilities where clinical instruction might be featured over periods of five or more days. With certain exceptions, in the first type of course the instructor does most of the traveling, while in the latter the physician desiring continuation study frequently must leave his community and travel to the center where clinical teaching may be emphasized over longer periods.

There were fifty opportunities for continuation study by physicians near their home communities in thirty-eight states, and forty-three of the courses offered were sponsored either singly or jointly by state medical societies. State boards of health sponsored thirty. Extension divisions of universities and medical schools sponsored seven courses each. Tuberculosis and other special organizations in some states acted as joint sponsors with state medical societies.

Of these fifty itinerant study courses, twenty-four were directed by state medical societies, eighteen by state boards of health, three by extension divisions of universities, two by tuberculosis organizations and one by the state division for crippled children, and two were jointly directed.

Twenty-two states and the District of Columbia had representative committees in the state society which attempted to provide a continuity and a correlation of all or most of the graduate medical activities of their respective states. Included were such activities as continuation study courses near the home communities of physicians and instruction given in centers where clinical material might be featured, as well as clinical conferences and graduate assemblies. With few exceptions graduate programs have been cooperative enterprises with component medical societies, medical schools, boards of health and other medical and health organizations participating. University extension divisions continued to aid practicing physicians in several states in organizing their graduate programs.

Private and public hospitals and medical schools have contributed their facilities and personnel, which in some states have beeen indispensable in developing suitable graduate activities.

Continuation study given where there were ample facilities for clinical instruction of five or more days is outlined in table 1-B, in which are listed fifty-nine courses offered in twenty-three states and the District of Columbia. Two other states provided opportunity for physicians to continue professional study elsewhere. Forty-three courses were sponsored by medical schools, including two graduate schools, seventeen by medical and clinical societies and academies of medicine, five by departments of health, three by the Commonwealth Fund of New York and the Bingham Associates Fund, three by hospitals, one by a university center for continuation study, and one by a university extension division. Medical school graduate programs were usually directed by the dean of the school, although sometimes the professor in charge of the course, the chairman of a postgraduate committee or of a department of postgraduate education in the medical school or the director of the division of graduate study would act. Courses sponsored by medical societies were directed by committee chairmen.

METHODS OF INSTRUCTION

States which provided opportunities for physicians to continue professional study near their home communities offered general subjects of medicine in twenty courses, obstetrics and gynecology in twenty-six, pediatrics in twenty-six, general and traumatic surgery in six and special subjects in seventeen.

In twenty-six of these itinerant courses instruction was given for five or more days, in succession or intermittently. In addition to lectures there were clinics, symposiums and conferences included in thirty-three courses. Local hospitals were utilized in thirty-four of the fifty programs. Public buildings, hotels, halls, club rooms and other local facilities were used whenever hospitals were not suitable or available. Approximately one half of the instructors engaged as field clinicians came from within the state where continuation study was offered, and in approximately one half of the

(Continued on page 777)

1. First annual report, 1937-1938, J. A. M. A. **111**: 801 (Aug. 27) 1938; subsequent reports are listed in footnote on page 787.

TABLE 1.—CONTINUATION COURSES FOR PRACTICING PHYSICIANS 1938-1939

A. In Proximity to Their Homes

Location of Course	Sponsoring Agencies	Director of Program	Subjects	Duration of Course	Time Given	Type of Instruction	Facilities for Graduate Programs	Instructors	Eligible for Admission	Registration Fee	Approximate Yearly Attendance	Contributing Agencies and Funds
Alabama												
35 centers	St. Med. Assn., St. Dept. Pub. Health, Extension Div. of Tulane U. of La.	Director, Med. Ext. Division, Tulane U. of La.	General	1 day weekly, 6 times	April and May	Lectures and Clinics	Public Buildings and Hospitals	Out of state univ.	Members of Co. Med. Soc. and others	$5	170 (1st circuit)	St. Med. Assn., Dept. of Health, Tulane Univ., Commonwealth Fund
Arizona												
Statewide	St. Med. Assn. and St. Bd. of Health	Chairman, Comm. on Maternal and Child Health, St. Med. Assn.	Obstetrics, Gynecology and Pediatrics	3 days	Spring and Fall	Lectures and Clinics	Hotels	Out of state univ.	M.D.'s	No	200	St. Bd. of Health
Arkansas												
5 towns	St. Med. Soc. and St. Bd. of Health	Director, Div. of Mat. and Ch. Health, St. Bd. of Health	Obstetrics	1 day weekly, 6 times	Spring	Lectures	Public Buildings	Out of state med. sch.	Licensed physicians	No	225	St. Bd. of Health and U. S. Children's Bureau
California												
Statewide	St. Med. Assn.	Secretary, Comm. on P. G. Activities	General	1 to 2 days	Throughout year	Talks, Discussions and Clinics if patients available	Local choice, Hospitals at times	In state and out of state	St. Med. Assn. members	Nominal	...	St. Med. Assn. and Co. Med. Socs.
20 towns	St. Dept. Health and St. Med. Assn.	Director, Dept. of Health	Obstetrics and Venereal Disease	1 day	Throughout year	Lectures and Clinics	Varied, Hospitals in some cases	In state and out of state med. sch.	Practicing physicians	No	...	Federal funds
Rural counties	St. Med. Assn. and Calif. T. B. Assn.	President, Calif. T. B. Assn.	Tuberculosis, Dis. of the Chest	1 day	Varies	Symposiums and Clinics	Hospitals	In state (about ½ med. sch.)	Co. Med. Soc. members	Yes	...	Calif. T. B. Assn.
Idaho												
5 towns	St. Med. Assn. and St. Dept. of Health	Director, Dept. of Health	Syphilology, Pediatrics, Orthopedics, General Medicine	1 day	Spring	Lectures	Local choice	Out of state	M.D.'s	No	170	St. Dept. of Health with assistance of U. S. Public Health Service
Illinois												
93 counties	State Med. Soc.	Chairman, Scientific Service Comm.	Medicine and Surgery (general)	1 to 4 programs on each subject	Throughout year	Lectures, Clinical Conferences, Symposiums, Clinics	Co. socs. select places	In state and out of state	Licensed M.D.'s	No	...	St. Med. Soc.
Indiana												
10 T. B. sanatoriums	Indiana T. B. Assn.	Supt. of each sanatorium	Tuberculosis	1 day	Fall	Lectures and Clinics	T. B. Hospitals	In state and out of state	Ethical M.D.'s	No	163	Ind. T. B. Assn.
Iowa												
18 towns	St. Med. Soc.	Chairman, Speakers' Bureau	Medicine, Surgery, General Therapeutics	1 day weekly, 6 to 8 times	Spring and Fall	Lectures and Symposiums	Hotels, High Schools, Hospitals	In state and out of state med. sch. and practicing M.D.'s	St. Med. Soc. members, assts. and nurses	$10 for 8 lect., $7.50 for 6	465	St. Med. Soc.
4 towns	St. Med. Soc., St. Health Dept., St. U. Coll. of Med., Ia. Ped. Club, Central Assn. of Obs. and Gyn.	Chairman, Speakers' Bureau, St. Med. Soc.	Obstetrics and Pediatrics	1 day weekly, 8 times	Fall	Lectures	Hotels	In state	M.D.'s, assts., nurses	$2	221	Federal funds
Kansas												
23 towns	St. Med. Soc. and St. Bd. of Health	Secretary, St. Bd. of Health and St. Med. Soc. committees	Cancer, Venereal Disease, Tuberculosis, Obstetrics and Pediatrics	1 day wk., 4 times Obs. & Ped.; 2 days V. D.; 12 sessions, Cancer	Varies	Lectures	Hotels and Hospitals	In state and out of state	Licensed M.D.'s	No	...	Bd. of Health, U. S. Public Health Service, St. Med. Soc.
Kentucky												
8 councilor districts	St. Med. Assn.	Chairman, Comm. on P. G. Instruction	General and Pediatrics	Day or Evening	Varies	Lectures, Clinics, Round Table Conferences	Public Buildings	In state	Members Co. Med. Socs.	No	500	St. Med. Assn. and Co. Med. Socs.
Louisiana												
14 towns	St. Med. Soc. and St. Bd. of Health	Director, Div. of Mat. and Ch. Health, St. Bd. of Health	Pediatrics	5 days	Throughout year	Lectures	Public Buildings, Hospital for 1 course	In state	M.D.'s	No	407	St. Bd. of Health
Maine												
Counties	St. Med. Assn.	Chairman, Graduate Education Comm.	Medicine, Surgery, Obstetrics, Ped.	1 to 2 days	Throughout year	Panel Discussions, Symposiums	Hotels and Hospitals	In state	St. Assn. members	No	...	St. Bd. of Health
Massachusetts												
17 dist. med. socs. (18 towns)	St. Med. Soc., St. Health Dept., U. S. Public Health Service, Children's Bur. U. S. Dept. of Labor	Secretary, Exec. Comm., St. Med. Soc. and P. G. Comm.	General	1 day weekly, 6 to 10 times	Fall and Spring	Lectures, Clinics and Symposiums	Hospitals chiefly	In state med. sch.	Physicians legally registered in Mass.	No	795	All sponsoring agencies
Michigan												
13 towns	St. Med. Soc. and Univ. of Mich.	Chairman, Adv. Comm. on P. G.	Mixed	1 day weekly	April and October	Lectures, Clinics and Symposiums	Hospitals chiefly	In state (major-ity)	M.D.'s	No	1,539	St. Med. Soc., U. of Mich., Federal funds

Michigan												
13 towns	St. Med. Soc. and Univ. of Mich., Wayne U., St. Dept. of Health	Chairman, Adv. Comm. on P. G. Educ., St. Med. Soc., Director Dept. P. G. Med., U. of Mich.	Mixed	1 day weekly, 8 times	April and October	Lectures, Clinics and Symposiums	Hospitals chiefly	In state (majority)	M.D.'s	No	1,539	St. Med. Soc., U. of Mich., Federal funds through St. Dept. of Health
4 centers	St. Med. Soc., U. Mich., Mich. Branch Amer. Acad. Ped., St. Dept. of Health	Director, Bureau of Mat. and Ch. Health	Pediatrics and Obstetrics	1 day weekly, 4 to 6 times	Spring and Fall	Lectures and Symposiums	Hospitals occasionally	In state	M.D.'s	No	476	St. Dept. of Health
Minnesota												
10 towns	St. Med. Assn., St. Dept. Health, U. Minn. Med. Sch.	Director, Div. Child Hygiene, St. Dept. of Health	Obstetrics and Pediatrics	1 day weekly, 5 times	May	Informal Lectures and Discussion	Selected by local chairman, Hospital occasionally	Chiefly in state med. sch.	Local physicians	No	300	St. Dept. of Health
Statewide	St. Bd. of Control	Director, Div. of Services for Crippled Children	Prevention of crippling conditions	.....	Throughout year	Lectures	Hotels or Hospitals	Medical school	Med. Soc. members	No	...	Div. of Services for Crippled Children
Counties	U. Minn. General Ext. Div.	Director, U. Ext. Div.	General	1 day weekly, 4 to 8 times	Spring and Fall	Lectures	High School Auditorium	In state	Co. Med. Soc. members	Nominal	15-20 at each lecture	None
Mississippi												
Statewide	St. Med. Assn., St. Bd. of Health, Miss. St. Hosp. Assn., Div. of Med. Ext., Tulane U. of La.	Director, Div. of Med. Ext. of Tulane U. of La.	General	1 to 2½ weeks	Throughout year	Lectures, Clinics, Consultation Service and Round Table Discussions	Hospitals and Public Buildings	Out of state med. sch.	Licensed physicians	$5	389	St. Med. Assn., Tulane Univ., Commonwealth Fund, St. Bd. of Health
Missouri												
40 cities and towns	St. Bd. of Health, St. Med. Assn., Ext. Serv. U. Mo. Coll. of Agri.	Director, Dept. of Child Hygiene, St. Bd. of Health	Preventive Obstetrics and Pediatrics	1 day 2 times	Throughout year	Lectures, Consultations, Clinics	Hospitals and Halls	Full time univ.	Licensed M.D.'s	No	671	St. Health Dept.
32 counties	St. Med. Assn.	Chairman, Comm. on P. G. course	Obstetrics, Pediatrics, Infectious Dis. and Accidents	Day or Evening	Varies	Lectures and Demonstrations	Hospitals or Halls	In state med. sch. and practicing M.D.'s	Members St. Med. Assn.	No	...	St. Med. Assn.
Montana												
3 centers	St. Med. Assn. and St. Bd. of Health	Chairman, Program Comm., St. Med. Assn.	Obstetrics, Pediatrics, Syphilology	2 days	Spring	Lectures	Halls	Out of state	Licensed physicians	No	175	St. Med. Assn., Federal funds through St. Bd. of Health
Nebraska												
Statewide	St. Med. Assn. and St. Bd. of Health	Chairman, Speaker's Bur., St. Med. Assn.	General	Once weekly, 6 times	Throughout year	Lectures and Symposiums	Hotels and Hospitals	In state med. sch.	Co. Med. Soc. members	No	...	Federal and State funds
Statewide	St. Med. Assn. and St. Bd. of Health	Director, Div. of Mat. and Ch. Health, St. Dept. of Health	Obstetrics and Pediatrics	12 lectures over 9 weeks	Throughout year	Lectures	Hotels and Hospitals	In state med. sch., and practicing physicians	M.D.'s	No	627	St. Dept. of Health
New Jersey												
Statewide	St. Med. Soc., Ext. Div. Rutger's U. with local Co. Med. Soc.	Chairman, Comm. on P. G. Educ. and Exec. Officer of St. Med. Soc.	Medicine, Surgery, Obstetrics, Malignant Disease, Syphilology	1 day weekly, 6 times	Winter or Spring	Clinics, Lectures and Symposiums	County Society rooms, Hotels and Hospitals	Out of state, usually med. sch.	Reputable physicians and interns	No, or $5 to $10	300-325	Rutgers University
5 towns	St. Med. Soc. and St. Dept. of Health	Chairman, Public Health Comm., St. Med. Soc.	Obstetrics and Pediatrics	April 5 to May 5	Spring	Lectures	Hotels, Hospitals and Dispensaries	Out of state	Co. Med. Soc. members and interns	No	600	St. Health Dept.
New Mexico												
8 towns	St. Med. Soc., St. Dept. of Health	Director, Div. of Mat. and Ch. Health, St. Dept. of Health	Obstetrics	3 or 5 sessions	May and September	Lectures, some with movies	Local choice	Out of state	M.D.'s	No	101	Federal funds
New York												
19 cities and towns	St. Med. Soc.	Chairman, Council Comm. on Public Health and Educ.	Ped., Gen Med., Heart Disease, Traumatic Surg.	Once weekly, 5 or 6 times	Throughout year	Lectures	Hospitals	In state med. sch.	All physicians	No	730	St. Dept. of Health
North Carolina												
5 centers	St. Med. Soc., Ext. Div. of U. North Carolina, Wake Forest Med. Sch.	Chairmen of Local Comms.	Medicine and Surgery	1 day weekly, 6 times	Varies	Lectures, Clinics, Symposiums, Clinico-pathologic Conferences	Hotels or regular meeting places of med. socs.	In state and out of state med. sch.	St. Med. Soc. members	$15	...	.....
Ohio												
7 cities	St. Med. Assn.	Chairman, Subcomm. on Regional P. G. Lect.	General	8 sessions biweekly,	Spring and Fall	Lectures and General Discussion	Hotels, Schools, Halls	In state	St. Med. Assn. members, interns, med. students, nurses	No	1,452	St. Med. Assn.
Statewide	St. Dept. of Health	Director of Health	Obstetrics and Pediatrics	1 day	Throughout year	Lectures, Clinics and Symposiums	Public Buildings, Churches and Hospitals	In state	St. Med. Soc. members and nurses	No	398	Bur. of Child Hyg., St. Bd. of Health

TABLE 1.—CONTINUATION COURSES FOR PRACTICING PHYSICIANS 1938-1939—Continued

A. In Proximity to Their Homes

Location of Course	Sponsoring Agencies	Director of Program	Subjects	Duration of Course	Time Given	Type of Instruction	Facilities for Graduate Programs	Instructors	Eligible for Admission	Registration Fee	Approximate Yearly Attendance	Contributing Agencies and Funds
Oklahoma 45 centers	St. Med. Assn.	Chairman, Comm. on P. G. Study, Field Director	Obstetrics	1 day weekly, 10 times	Throughout year	Didactic Lectures, Demonstrations, Dry Clinics	Public Lecture Halls and Hospitals	Out of state	Licensed physicians	$5	375 (1st 5 circuits)	Commonwealth Fund, St. Dept. of Health, St. Med. Assn.
Oregon 9 cities	St. Med. Soc. and St. Bd. of Health	Director, Div. Mat. and Ch. Health, St. Bd. of Health	Obstetrics and Pediatrics	1 to 2 days	May	Lectures	Public Buildings	Out of state med. sch. and practicing M.D.	Licensed physicians	No	277	Federal funds available through St. Bd. of Health
Pennsylvania Statewide	St. Med. Soc.	Chairman and Field Sec'y, Comm. on Grad. Med. Educ.	General	1 day weekly, 6 times	Varies	Lectures and Dry Clinics	Hospitals	In state and out of state med. sch.	All M.D.'s; 99% are St. Med. Assn. members	$10	583	St. Med. Assn.
Rhode Island 2 towns	St. Dept. of Pub. Health	Chief, Bureau of Child Hygiene	Obstetrics and Pediatrics	1 day weekly, 5 times	Summer and Winter	Lectures and Demonstrations	Hospitals	In state	M.D.'s	No	100	St. Dept. of Public Health
South Carolina 20 counties	St. Bd. of Health, Med. Coll. of S.C.	Director, Div. of Mat. and Ch. Health, St. Bd. of Health	Obstetrics	1 day weekly, 6 times	June to September	Lectures illustrated with slides and movies	Hospitals and Public Buildings	In state med. sch.	M.D.'s, health officers, nurses	No	196	Med. Coll. and St. Bd. of Health
South Dakota 4 centers	St. Med. Assn. and St. Bd. of Health	Secretary, St. Med. Assn.	Obstetrics and Pediatrics	1 day	Throughout year	Lectures	Local choice	Out of state	Licensed physicians	No	75	Federal funds through St. Bd. of Health
Tennessee 45 centers	St. Med. Assn.	Chairman, Comm. on P. G. Instruction in Pediatrics	Pediatrics	1 day weekly, 10 times	Throughout year	Lectures, Clinics, Demonstrations, Consultations	In Hospitals where available	Out of state univ.	Licensed physicians	$10	85 (5 centers)	St. Med. Assn., St. Bd. of Health, Commonwealth Fund, U. of Tenn. and Vanderbilt U.
East, Middle and West Tennessee	St. Med. Assn.	Assistant Secretary	General	3 days	April	Lectures, Symposiums, Exhibits	Hotels	In state and out of state	St. Med. Assn. members and guests	No	500	St. Med. Assn.
Texas Statewide	St. Med. Assn. and St. Bd. of Health	Director, Div. Mat. and Child Health, St. Bd. of Health	Obstetrics and Pediatrics	1 to 2 days	Fall, Winter, Spring	Lectures	Churches, Auditoriums, occasionally Hospitals	In state	Licensed physicians	No	575 (1937-38)	Federal funds
Utah 19 centers	St. Bd. of Health	Director, Div. Mat. and Child Health	Pediatrics	1 to 2 days	June and July	Lectures and Clinics	Hospitals, Halls, Univ. Library	Out of state	Physicians	No	128	St. Bd. of Health
Virginia Statewide	St. Med. Soc., Ext. Div. U. Virginia	Executive Secretary, St. Med. Soc.	Pediatrics, Obstetrics, Internal Medicine	1 day weekly, 5 to 10 times or longer	Throughout year	Lectures, Clinics, Case Histories and Discussion	Hospitals whenever practical, Suitable Bldgs.	In state and out of state med. sch.	Licensed physicians	$2, $3 to $10	547	St. Med. Soc., St. Bd. of Health (originally a grant from Commonwealth Fund)
Washington 6 to 9 centers	St. Med. Assn. and St. Dept. of Health	Chairman, Mat. Welfare Comm., St. Med. Assn.; Chief, Mat. and Child Hyg., St. Dept. of Health	Obstetrics	3 days	Summer	Lectures and Conferences	Rooms, sometimes in Hospitals	Out of state univ.	Practicing physicians	No	217	St. Dept. of Health
West Virginia 16 towns	St. Med. Assn. and St. Dept. of Health	Director, Div. Mat. and Child Hyg., St. Health Dept.	Obstetrics and Pediatrics	1 day weekly, 6 times	July and August	Lectures and Clinics	Town Halls, Club Rooms, Hospitals for Clinics	Out of state med. sch.	Licensed physicians	No	150	Federal funds through St. Bd. of Health
Wisconsin 3 towns	St. Med. Soc.	Chairman, Council on Scientific Work	General	1 day, 3 times	April	Lectures, Clinics, Round Table Discussions	Hotels	Out of state and in state med. sch.	Licensed physicians	$5	450	St. Assn., Federal funds through St. Bd. of Health
5 towns	St. Bd. of Health and St. Med. Soc.	Chief, Bur. Mat. and Child Health	Obstetrics and Pediatrics	1 day, 3 times	June	Lectures	Hotels	In state and out of state med. sch.	Licensed physicians	No	112	St. Bd. of Health
Wyoming 10 towns	St. Med. Soc. and St. Health Dept.	Director, Div. Mat. and Child Health, St. Health Dept.	Pediatrics	1 to 3 days	April, May and June	Lectures, Clinics and Consultations	Hospitals, Hotels, School Buildings	Out of state	Co. Med. Soc. members	No	125	State Health Dept.

(Continued from page 773)

courses out of state physicians participated. Of the total, slightly more than one half of the instructors were from medical schools.

Where continuation study featured clinical instruction at one center, such subjects as general medicine, obstetrics, pediatrics and surgery were included. All but five of the graduate programs of five or more days' duration emphasized clinical instruction. Opportunities were given for continuing study of special as well as general subjects of medicine. The following special subjects were included: anesthesia, broncho-esophagology, cardiology, dermatology, forensic medicine, genito-urinary surgery, hematology, industrial hygiene, metabolic diseases, ophthalmology, orthopedics, oto-laryngology, physical therapy, public health, radiology and venereal diseases. In only nine centers was instruction in preclinical subjects offered over short periods.

The duration of continuation study in which clinical instruction was featured varied from five days to six months or more. Forty-two of the fifty-nine courses in table 1-B lasted from five days to two weeks. Thirteen programs were conducted over periods of four weeks or more. In the remainder the periods of instruction were variable. The time of year in which instruction was given varied considerably. In some of the medical schools it was necessary to accept physicians for short terms of graduate study during vacation periods in order to accommodate them when undergraduate students were not in attendance.

Without exception, something more than didactic lectures was included in the courses given at one center. Laboratory demonstrations, clinics, ward rounds, round table discussions, clinical pathologic and other conferences, symposiums and bedside teaching as well as other practical clinical demonstrations were attempted. Laboratory as well as clinical facilities were utilized. In addition to medical schools which opened their facilities to practicing physicians for short periods of clinical study, use was made of hospitals, medical society buildings, outpatient clinics, health agencies and, in four instances, hotels.

PHYSICIANS' INTEREST IN CONTINUATION STUDY

All continuation courses were open to licensed physicians practicing in or near the community in which the instruction was given. In some only practicing physicians were admitted to the course and, in fifteen of the fifty itinerant continuation courses, membership in county or state medical societies was required. With nine exceptions the approximate yearly attendance was recorded. Registration varied from fifteen at each session in one instance to a total of 1,539 in one state. From 550 to 600 was the median number of practicing physicians who enrolled for all courses of continuation study in each state, excluding brief conferences. In fifteen courses the names of physicians enrolled were published; in some states the names of registrants were reported and filed in the offices of state medical societies. Permanent record systems were being developed in several states. It was observed frequently that physicians once enrolled for graduate instruction often returned for additional courses, especially when they had some voice in electing the kind of educational programs offered.

The success of continuation study programs for practicing physicians is dependent largely on the interest and activity of component medical societies and with few exceptions the best attended and, in the opinion of many physicians, the most useful educational projects encountered were those actively directed by well organized medical societies. This is especially true in rural communities.

Continuation study featuring clinical instruction particularly should include consideration not only of the physicians anxious to extend their own knowledge of medicine but also of the participation by other physicians who devote, oftentimes without compensation, considerable time and effort to the development of postgraduate programs suitable for their fellows. This applies especially to the organization of clinical material in any continuation course in which clinical instruction is featured. In order to give acceptable instruction in a previously scheduled subject to a group of physicians, it is necessary to have an ample number and diversity of teaching patients available who may be utilized and about whom the discussion may center. On this account, presumably, medical schools, hospitals and outpatient clinics with an abundance of clinical material and with facilities for adequate handling have provided the best opportunities. In the graduate programs listed in table 1-B in which clinical material might be featured, faculty members of medical schools were largely responsible for the instruction.

Eligibility for admission to courses featuring clinical instruction included a doctor of medicine degree in every instance and in some other qualifications in addition. Some medical schools required that physicians be approved by the school before they were accepted for instruction involving the use of clinical material. Programs in public health, hygiene and related subjects such as venereal diseases sponsored or supported in part by health agencies sometimes required that physicians applying for instruction be recommended by state health officers. Medical military courses usually were designed for medical reserve officers of the army and navy, but other practicing physicians also were eligible.

Where clinical material was presented, it was necessary for attendance to be limited to the facilities available. The yearly attendance varied appreciably; 500 or more physicians were accommodated in six centers, from 200 to 500 in five, from 100 to 200 in eight others, while less than 100 were in attendance in the remaining courses listed. Where large numbers of physicians were accommodated, either many varied courses with limited attendance were scheduled, like those offered at Columbia University in New York City, or the instruction simulated that given in clinical conferences, such as the annual program of the Philadelphia County Medical Society. Many variations of these graduate programs were observed. Generally, smaller groups of physicians found greater satisfaction with studies featuring clinical material than did larger audiences before which clinical demonstrations were difficult.

FINANCIAL SUPPORT OF GRADUATE EDUCATION

No registration fees were charged in thirty-seven of the fifty itinerant continuation courses offered; in fourteen, fees varied from $2 to $15. Eighteen state medical societies contributed varying amounts. Those reported were from $1,000 to $5,000 annually. State boards of health contributed to the financial support of thirty-two courses; federal funds aided fifteen and universities five. The Commonwealth Fund of New York has given substantial financial aid for promoting graduate study in ten states. Tuberculosis associations of two states, a state division of services for crippled children

(Continued on page 781)

TABLE 1.—CONTINUATION COURSES FOR PRACTICING PHYSICIANS 1938-1939

B. Where There Are Ample Facilities for Clinical Instruction—Five or More Days

Location of Course		Sponsoring Agencies	Director of Program	Subjects	Duration of Course	Time Given	Type of Instruction	Facilities for Graduate Programs	Instructors	Eligible for Admission	Registration Fee	Approximate Yearly Attendance	Contributing Agencies and Funds
California													
Stockton		San Joaquin Co. Med. Soc.	Chairman, Comm. on P. G. Study	General	1 day weekly, 7 times	September, October, November	Lectures, Clinics and Discussions	Medical Club Rooms and Hospitals	Out of state and in state faculty members	M.D.'s in good standing	$5	65	None
San Francisco		Stanford U. Sch. of Med. (Loren R. Chandler, M.D., Dean)	Dean	Med., Surg., Ped., Gyn. and Special Courses	5 days	September	Lectures, Conference, Demonstrations, Ward rounds, Clinics and Lab. experience	Hospital	Faculty members	M.D.'s licensed to practice	$25 to $35	160	Sch. of Med., San Francisco Dept. of Pub. Health and San Francisco Hosp.
Connecticut													
New Haven		Yale U. Sch. of Med. (S. Bayne-Jones, M.D., Dean)	Professor in charge of course	Obstetrics and Gynecology	1 day weekly, 6 times	February and March	Lectures and Discussions	Medical School	Faculty members	Practicing physicians	$10	12 (Limited)	None
District of Columbia													
Washington	1.	George Washington U. Sch. of Med. (Walter A. Bloedorn, M.D., Dean)	Dean	Ophthalmology	5 days	April	Lectures and Discussions	Medical School and Hospital	In state and out of state	M.D.'s	$40, $60	170	School of Medicine
	2.	Howard U. Coll. of Med. (Numa P. G. Adams, M.D., Dean)	Dean	Venereal Disease	3 months	Autumn, Winter and Spring	Lectures, Clinics, Round Table and Clin. Path. Confs., Ward Rounds, other assignments	Medical School and Hospital	Faculty members	M.D.'s subject to approval	$20	17 (Limited)	Coll of Med.., U. S. Public Health Service, Health Dept. of D. C., and Freedmen's Hosp.
Florida													
Daytona Beach		State Med. Assn.	Chairman, Med. P. G. Course	General and Special	1 week	June and July	Lectures and Symposiums	Hotels	Out of state medical school	Members of, and those certified by Co. Med. Socs.	$5	110	St. Med. Assn. and St. Bd. of Health
Georgia													
Augusta		U. of Ga. Sch. of Med. (G. Lombard Kelly, M.D., Dean)	Dean	Med., Surg., Ped., Obs., Gyn. and Special	2 weeks	June	Lectures, Clinics and Symposiums	Medical School and Hospital	Faculty members	Licensed Negro physicians	No	18 (Limited)	Julius Rosenwald Fund
Idaho													
Boise		State Med. Assn.	Chairman, Program Comm.	General	5 days	August	Lectures and Symposiums	Hotel	Out of state	Licensed physicians	$5 to $10	100-150	St. Medical Society
Illinois													
Chicago	1.	St. Med. Soc., St. Dept. of Health, U. of Ill. Coll. of Med.	Chairman, Adv. Comm. Mat. and Child Health, St. Dept. of H.	Obstetrics and Pediatrics	1 week (8 courses)	July and August	Didactic and Clinical Instruction	Hospital	In state and out of state	Licensed M.D.'s	$10	See Chicago no. 3	Fed. Funds through St. Dept. of Health
	2.	U. of Ill. Coll. of Med., St. Dept. of Health	Dean, Coll. of Med.	Syphilology	2 days weekly, 8 times	4 times yearly	Lectures, Laboratory, Demonstrations, Clinics	Hospital	Faculty members	Licensed M.D.'s in Ill.	$10	Limited to 20	Fed. Funds through St. Dept. of Health
	3.	U. of Ill. Coll. of Med. (G. R. Moon, Asst. to the Dean)	Dean	Anat., Rad., Phy. Ther. (Ped., Syph., Obs.), Orth., Otol. and Oph.	Variable	Variable	Lectures and Clinics	Medical College and Hospital	Faculty members	M.D.'s	$10 to $100	122 (Limited)	Medical College
	4.	Northwestern U. Med. Sch. (C. W. Patterson, Registrar)	Dean	Med., G. U. Surg., Oph., and Phys. Ther.	2 weeks or more	Autumn and Winter	Lectures, Demonstrations, Clinics and Ward Rounds	Medical School and Hospital	Faculty members	M.D.'s	$50 to $300	62 (Limited)	Medical School
	5.	U. of Chicago Med. Schs. (B. C. H. Harvey, M.D., Dean of Med. Students)	Dean	Medicine	Variable	Variable	Didactic and Clinical	Medical School and Hospital	Faculty members	Grads. subject to approval	$100	15 (Limited)	Medical School
Indiana													
Indianapolis	1.	Ind. U. Sch. of Med.	Chairman, P. G. Comm.	General	1 week	Spring	Lectures, Demonstrations, Clinics, Round Table Discussions	Hospitals and Medical School	In state and out of state	Co. Med. Soc. members	No	542	Research Fund of Sch. of Med.
	2.	Ind. U. Sch. of Med., St. Med. Assn., St. Bd. of Health	Director, P. G. Educ. Sch. of Med., Chief, Bur. of Mat. and Child Health, St. Bd. of Health	Obstetrics and Pediatrics	2 weeks	Throughout year	Lectures, Clinics, Symposiums, Demonstrations	Medical Center and Hospitals	Faculty members	Licensed Ind. phys., grads. of more than 5 years	No	25 (Class limit, 4 to 8)	Med. Sch. and Bureau of Mat. and Child Health

Kentucky													
Louisville		State Med. Assn.	Chairman, Comm. on P. G. course in Dis. of Children	Pediatrics	1 day weekly, 10 times	Spring	Lectures and Presentation of Cases	Hospital	Faculty members	Reputable physicians	$5	20	None
Louisiana													
New Orleans	1.	Tulane U. of La. Sch. of Med., Dept. of Grad. Studies	Director	General (intensive instruction)	1 week	October	Lectures, Clinics, Moving Pictures, Symposiums	Medical School and Hospital	Faculty members	M.D.'s	$5	64	Medical School
	2.	Tulane U. of La. Sch. of Med. with coop. of U. S. Army and Navy	Director	Medical Military	1 week	May	Lectures, Demonstrations, Clinics, Symposiums	Medical School and Hospital	Faculty members	M.D.'s, Med. Reserve officers	..	67	Medical School
	3.	Tulane U. of La. Sch. of Med., Dept. of Grad. Studies	Director	Med., Surg., Obs., Gyn., Ped. and Special Courses	1 week to 12 weeks or more	Throughout year	Lectures, Demonstrations, Clinics, Symposiums	Medical School and Hospital	Faculty members	M.D.'s	$5 to $150	62	Commonwealth Fund of New York
	4.	Louisiana St. U. Med. Center (Rigney D'Aunoy, M.D., Dean)	Dean	Rad., Derm. & Syph., Surg., Otol., Obs. and Urol.	2 to 8 weeks	Jan., Feb. and March	Lectures, Clinics, Ward Rounds and Conferences	Medical Center and Hospitals	Faculty members	M.D.'s	$25 to $150	30 (Limited)	Medical School
	5.	Flint-Goodridge Hosp., Dillard U.	Superintendent	General	2 weeks	June	Lectures, Clinics and Symposiums	Hospital	In state med. sch.	Negro physicians	$5	35	Private
Maine													
Boston, Mass.		New Eng. Med. Center, Tufts Coll. Med. Sch.	Director, Bingham Associates Fund	Med., Surg., Obst., Ped., and Special Courses	1 week to 2 months	Throughout year	Lectures and Clinics	Hospitals and Medical School	Out of state	St. Med. Assn. members	No	Limited	Bingham Assocs. Fund provides for Maine physicians
Maryland													
Baltimore		Johns Hopkins U. Sch. of Med. (A. M. Chesney, M.D., Dean)	Dean	Clinical	6 months or more	Throughout year	Clinical and Laboratory	Outpatient Clinics and Medical School	Faculty members	M.D.'s with faculty approval	$50 (quarter)	Limited	Medical School
Massachusetts													
Boston	1.	Harvard U. Med. Sch. (C. S. Burwell, M.D., Dean)	Dean	Preclin., Med., Surg., Obst., Gyn., Ped. and Special Courses	Variable	Throughout year	Clinical	Medical School and Hospitals	Faculty members	M.D.'s with faculty approval	$5 (Regis.) $25 to $250 (tuition)	727	Medical School
	2.	Tufts Coll. Med. Sch. (Samuel Proger, M.D., Chairman Comm. on P. G. Educ.)	Chairman, Comm. on P. G. Educ.	Med., Obs., Gyn., Ped. and Special Courses	Variable	Throughout year	Clinical	Medical School and Hospital	Faculty members	M.D.'s	$5 (Regis.) $25 to $100 (tuition)	66	Bingham Assocs. Fund and Medical School
Michigan													
Ann Arbor		U. of Mich. Med. Sch., St. Med. Soc.	Director, Dept. of P. G. Med.	Preclin., Med., Ped., Surg., Obs., Gyn., Special Courses	1 to 8 weeks or longer	Throughout year	Lectures, Clinics, Symposiums	Hospital	In state almost entirely	M.D.'s in good standing	$5 to $30	567 (Limited)	St. Med. Soc., U. of Mich., Federal Funds through St. Bd. of Health
Detroit		Wayne U. Coll. of Med. (Wm. J. Stapleton, Jr., M.D., Assoc. Dean)	Dean	Preclin., Med., Ped., and Special Courses	Variable	Throughout year	Didactic and Clinical	Medical School and Hospital	Faculty members	M.D.'s	None to $25	200	Medical College
Minnesota													
Minneapolis		U. of Minn. Center for Continuation Study	Director, Dept. of P. G. Med. Educ.	General	6 days	Throughout year	Lectures, Clinics, Demonstrations, Movies, Round Table Discussions	Medical Center and Affiliated Hospitals	In state faculty members and out of state	Licensed Minn. M.D.'s; out of state Co. Soc. members	$25	395 (Limited)	Univ., Mayo Foundation and Commonwealth Fund of New York
Missouri													
St. Louis	1.	St. Louis Clin. Soc.	President	Medicine and Surgery	6 days	May	Lectures, Clinics and Symposiums	Clinical Society Bldg. and Hosp.	Members of St. Louis Clinics	M.D.'s	$10 ($2.50 for Med. Corps)	112	None
	2.	Washington U. Sch. Med. (Philip Shaffer, Ph.D., Dean)	Dean	Anat., Ped., Obs. and Gyn.	2 to 4 weeks	May, June, July	Clinical	Medical School and Hospital	Faculty members	M.D.'s	$75 to $100	11 (Limited)	Medical School
	3.	St. Louis U. Sch. Med. (Rev. A. M. Schwitalla, S.J., Ph.D., Dean)	Dean	Medicine and Surgery	16 sessions	.....	Clinical	Hospital and Medical School	Faculty members	M.D.'s	$100	7 (Limited)	Medical School
Nebraska													
Omaha		Omaha Mid-West Clin. Soc.	Secretary-Director of Clinics	General	5 days	October	Lectures, Clinics, Symposiums, Scientific Exhibits	Hotel	In state and out of state faculty members	Practicing physicians of Mo. Valley	$5	670	Dues from members
New Hampshire													
Boston, Mass.		Commonwealth Fund	Director, Extension Service	Med., Obs. and Minor Surg.	1 month	Spring	Lectures, Clinics, Bedside Teaching	Harvard Medical School and Hosp.	Faculty members	M.D.'s subject to approval	No	10	Commonwealth Fund of New York
New Jersey													
Jersey City		Med. Soc. of N. J. and Margaret Hague Maternity Hosp.	Director of Hospital	Obstetrics	1 week or more	Throughout year	Lectures, Conferences, Laboratory and Observations	Hospital	Hospital staff	Practicing physicians of New Jersey	Contingent on length of course	10	Hospital

TABLE 1.—CONTINUATION COURSES FOR PRACTICING PHYSICIANS 1938-1939—Continued

B. Where There Are Ample Facilities for Clinical Instruction—Five or More Days

Location of Course		Sponsoring Agencies	Director of Program	Subjects	Duration of Course	Time Given	Type of Instruction	Facilities for Graduate Programs	Instructors	Eligible for Admission	Registration Fee	Approximate Yearly Attendance	Contributing Agencies and Funds
New York													
Albany		Albany Med. Coll. (R. S. Cunningham, M.D., Dean) and N. Y. St. Dept. of Health	Dean	Public Health	1 week plus 11 field visits	June and once monthly throughout year	Lectures, Discussions and Demonstrations	Health Agencies	In state	M.D.'s	$30	100	St. Dept. of Health and Med. Coll.
Brooklyn		Kings Co. Med. Soc. and Long Island Coll. of Med.	Chairman, Joint Comm. on P. G. Educ.	General	1 day weekly, 8 to 10 times	Fall, Winter and Spring	Lectures and Practical Clinical Demonstrations	Medical College, Soc. Bldg. and Hospital	In state faculty members and hosp. staff	Grads. of approved med. sch.	$10 to $25 up	457	None
N. Y. City	1.	N. Y. C. Health Dept.	Director, Bureau of Soc. Hygiene	Venereal Diseases	3 months	Fall, Winter and Spring	Lectures, Demonstrations, Clinics	Social Hygiene Clinics	In state faculty members and hosp. staff	Practicing physicians in N. Y. City	No	Limited to 12-18 Clinic 70-80 Lecture	None
	2.	N. Y. Acad. of Med.	Chairman, Subcomm. on Graduate Fortnight	General	2 weeks	October	Lectures and Clinical Demonstrations	Academy Bldg. and Hospitals	In state and out of state	M.D.'s	$5	500-700	Academy of Med.
	3.	Columbia U. Coll. of P. & S. (W. C. Rappleye, M.D., Dean)	Dean, Faculty of Medicine	Preclin., Med., Surg., Ped., Obs., Gyn. and Special Courses	1 week and longer	Throughout year	Clinical Experience in Outpatient Departments	Postgrad. Med. Sch. and Hosp. and other hosps affiliated with Univ.	Faculty members	Licensed M.D.'s subject to approval	$15 to $400	1,148	Columbia University
	4.	New York Med. Coll. (C. A. Burrett, M.D., Dean)	Dean	Anat., Med., Surg., Otol. and Oph.	Variable	Variable	Clinical	Medical School and Hospital	Faculty members	Graduates of approved med. schools	$50 to $150	7 (Limited)	Medical School
	5.	N. Y. U. Coll. of Med. (J. H. Mulholland, M.D., Asst. Dean)	Asst. Dean	Rad., Anes., Med., Syph. and Forensic Med.	3 weeks to 11 months	Throughout year	Didactic, Clinical and Laboratory	Medical School and Hospital	Faculty members	M.D.'s subject to approval	$10 to $200	63 (Limited)	Medical School
	6.	N. Y. Polyclinic Med. Sch. and Hosp. (F. H. Dillingham, M.D., Med. Exec. Officer)	Med. Executive Officer	Preclin., Med., Ped., Surg., Obs., Gyn. and Special Courses	4 weeks to 9 months	Throughout year	Didactic, Clinical and Laboratory	Medical School and Hospital	Faculty members	M.D.'s from approved med. schools	$20 a week or more	156	Medical School
Rochester		U. of Rochester Sch. of Med. (G. H. Whipple, M.D., Dean)	Director, Summer Course in Oph.	Ophthalmology	5 days	July	Lectures, Demonstrations and Clinics	Medical school and Hospital	Faculty members	Ophthalmic practitioners	$40	..	Medical School
Syracuse		Onondaga Co. Med. Soc.	Chairman, Comm. on Med. Educ.	General Medicine and Surgery	3 to 6 sessions	Fall and Spring	Clinical and Laboratory	Free Dispensary	Co. Soc. members	Members of Co. Med. Soc.	$5	28 (Limited)	Co. Med. Soc. and Medical School
North Carolina													
Durham		Duke Univ. Sch. of Med. (W. C. Davison, M.D., Dean)	Chairman, Comm. on P. G. Instruc.	Medicine and Surgery	10 days	Varies	Lectures, Clinics, Symposiums, Clin. Path. Conferences	Hospital	In state and out of state	St. Med. Soc. members	$10	..	Medical School
Saluda		Southern Pediatric Seminar	Director of Seminar	Pediatrics	2 weeks	July and August	Lectures, Clinics and Symposiums	Hospital	Out of state medical school	Licensed M.D.'s	$25	47	None
Ohio													
Cincinnati		U. Cincinnati Coll. of Med. (Stanley E. Dorst, M.D., Acting Dean)	Acting Dean	Otolaryngology	1 week	May-June	Anatomical studies	Medical College	Faculty members	Practicing otolaryngologists	$60	25 (Limited)	Medical College
Cleveland		Western Reserve U. Sch. of Med. (Torald Sollmann, M.D., Dean)	Dean	Syphilology	1 week or more	November	Clinics, Lectures, Laboratory and Conferences	Medical School and Hospital	Faculty members	M.D.'s subject to approval	None	27 (Limited)	U. S. Public Health Service
Pennsylvania													
Philadelphia	1.	Philadelphia Co. Med. Soc.*	Director, P. G. Institute	Blood Dyscrasias and Metabolic Disorders	5 days	March	Lectures, Symposiums	Hotel	In state	M.D.'s	$5, no charge to members	1,376 (pract. phys.)	Co. Med. Soc.
	2.	Grad. Sch. of Med., U. of Pennsylvania (G. H. Meeker, Ph.D., Dean)	Dean	Special Subjects	2 to 8 weeks	Throughout year	Clinical and Laboratory	University and Hospitals	Graduate Sch.	M.D.'s subject to approval	$80 to $300	Limited	Graduate School
	3.	Pennsylvania Hosp.	Registrar, summer course	Internal Medicine	18 days	June	Clinical and Laboratory	Hospital	In state	M.D.'s	$100	Limited	Hospital
	4.	Temple U. Sch. of Med. (William N. Parkinson, M.D., Dean)	Dean	Broncho-esophagology	2 weeks	Throughout year	Clinical	Medical School and Hospital	Faculty members	M.D.'s	$250	21 (Limited)	Medical School

	5.	Woman's Med. Coll. of Pa. (Martha Tracy, M.D., Dean)	Dean	Cardiology, Obs. and Gyn.	Variable	Variable	Clinical	Medical College and Hospital	Faculty members	M.D.'s	$50 to $100	3 (Limited)	Medical College
Pittsburgh		U. of Pittsburgh Sch. of Med. (W. S. McElroy, M.D., Dean) and Allegheny Co. Med. Soc.	Dean	Industrial Hygiene	5 days	October	Lectures and Demonstrations	Medical School and Industrial Plants	In state and out of state	M.D.'s	$50	33 (Limited)	Medical School and Co. Med. Soc.
Tennessee													
Nashville	1.	Nashville P. G. Med. Assn.	President	General	2 weeks	June	Lectures and Clinics	Hospital	In state and out of state	Licensed practicing physicians	$10	28 (Limited)	None
	2.	Meharry Med. Coll. (Edward L. Turner, M.D., Dean)	Chairman, Comm. on P. G. Course	General Review in Current Medical Problems	2 weeks	June	Didactic, Clinical and Laboratory	Medical College and Hospital	In state	Negro physicians	$20	16 (Limited)	Medical School
	3.	Vanderbilt U. Sch. of Med. (W. S. Leathers, M.D., Dean)	Director, P. G. Instruction	General and Special Courses	2 to 4 weeks	Throughout year	Clinical and Laboratory	Medical School	Faculty members	M.D.'s subject to approval	None to $75 or more	96	Medical School
	4.	Vanderbilt U. Sch. of Med.	Director, P. G. Instruction	Preventive Med., Public Health and Syphilis	1 to 6 months or more	September to April	Didactic, Clinical, Laboratory and Field Work	Medical School and Field	Faculty members	M.D.'s with intention to enter Public Health	None to $100	See Nashville no. 3	Med. Sch., St. Dept. of Health and U. S. Public Health Serv.
	5.	Vanderbilt U. Sch. of Med. and Commonwealth Fund	Director, P. G. Instruction	Med., Surg., Ped. and Obs.	1 month	June, July and August	Clinical and Laboratory	Medical School	Faculty members	M.D.'s	$150 plus Lab. fee	See Nashville no. 3	Commonwealth Fund of New York
Virginia													
Richmond		Med. Coll. of Va. (L. E. Sutton, Jr., M.D., Dean)	Dean	General Medicine	2 weeks	June	Didactic and Clinical	Medical College and Hospital	Faculty members	Negro physicians	$10	35	Med. Coll. and Gen. Education Board of New York City
Washington													
Seattle		U. Wash. Ext. Div.	Chairman, King Co. Med. Soc. Comm.	General	5 days	July	Lectures, Clinics, Demonstrations	University and Hospital	Out of state faculty members	Local med. soc. members	$10 to $15	200	None

* Annual 5 day course of clinical lectures for Negro physicians, under auspices of Mercy Hospital.

(Continued from page 777)

and the medical college in one state contributed their financial support to continuation study by practicing physicians.

With eleven exceptions, continuation courses featuring clinical material at one center required fees of from $5 to $400. Medical schools most frequently were the contributing agencies, with medical societies, state departments of health and private foundations and funds sharing part of the expenses of clinical instruction.

CLINICAL CONFERENCES

Table 2 summarizes the available information on forty-three clinical conferences, graduate assemblies and study courses of less than five days' duration. State and county medical societies, clinical societies, medical schools and health departments have provided such opportunities for practicing physicians in twenty-one states and the District of Columbia. Thirty-seven of the programs were sponsored by medical and clinical societies, some with other organizations and eight by medical schools.

Conferences of from one to four days' duration were usually held in the spring or fall in metropolitan areas with facilities to accommodate large assemblies. In slightly more than half of these conferences, clinics as well as symposiums, round table discussions and demonstrations were conducted.

About three fourths of the conferences were concerned with general discussions in medicine and the remainder with such subjects as pediatrics, heart disease, endocrinology, metabolic diseases, fractures and pneumonia. In twenty-five of the forty-three programs given, the facilities of hospitals and medical schools were used. Physicians from within the state in which the clinical conference was held participated in thirty-five programs, and out of state speakers were engaged in twenty-seven.

Practicing physicians were eligible for admission to all conferences, and in eight membership in county, state or special medical societies was required. In all but twenty of these programs, registration fees varied from $1 to $20. The approximate yearly attendance at clinical conferences listed in table 2 ranged from forty-four to 925, the median being from 200 to 225.

Twenty-eight conferences or assemblies were supported by medical, clinical or special societies, eight by departments of health, eight by medical schools or universities, two by hospitals and one by a private fund. Technical exhibits aided in the financial support of several assemblies.

COMMENT ON CONFERENCES

There was considerable variety and significant difference in the organization and the administration of clinical conferences, graduate assemblies and study courses. In some localities conferences were held at annual intervals to supplement the regular programs of county, district and state medical societies. In some states where a number of conferences have been organized it has been found convenient to schedule these assemblies so as not to conflict with other clinical conferences or with the meetings of other medical societies.

Graduate assemblies in general are independent nonprofit organizations of local physicians organized for the specific purpose of promoting medical education. Frequently they were sponsored by county or district medical societies. They provided physicians practicing in the vicinity an opportunity to be addressed by promi-

(Continued on page 784)

TABLE 2—CLINICAL CONFERENCES, GRADUATE ASSEMBLIES AND STUDY COURSES—LESS THAN FIVE DAYS, 1938-1939

Location of Course	Sponsoring Agencies	Director of Program	Subjects	Duration of Course	Time Given	Type of Instruction	Facilities for Graduate Program	Instructors	Eligible for Admission	Registration Fee	Approximate Yearly Attendance	Contributing Agencies and Funds
Arkansas												
Little Rock	St. Med. Soc.	Chairman, Comm. on P. G. Instruction	General	2 days	January and October	Lectures and Clinics	Medical School	In state medical school faculty and out of state	St. Med. Soc. members, interns, students	$5	202	None
California												
Los Angeles and San Francisco	Calif. Heart Assn.	Chairmen, Local Program Comms.	Heart Disease	2 to 3 days	November	Symposiums, Lectures, Clinics, Study Groups	Varies—Medical Schools, Hospitals	In state, local M.D.'s and med. sch. faculty	M.D.'s	$2 L. A. $10 to $15 S. F.	175-300	State and local T. B. Assns.
San Bernardino	San Bernardino and Riverside Co. Med. Socs.	Chairmen, Comms. on P. G. Activities	Obstetrics and Medicine	2 days	March and April	Clinics and Symposiums	Hospitals	In state medical school faculty	M.D.'s	No	150	St. Med. Assn. and Co. Med. Soc.
San Francisco	U. Calif. Med. Sch.	Dean	Fractures, Endocrinology and Metabolic Diseases	3 and 4 days	December, April	Lectures, Clinics and Symposiums	Hospitals	Medical School faculty	M.D.'s	$20	80	Med. Sch. and San Francisco Dept. of Health
Colorado												
Denver	St. Med. Soc., St. Health Dept.	Chairman, Midwinter P. G. Clinic Comm., and Director, Mat. and Child Health, St. Health Dept.	Obstetrics and Pediatrics, General Med. and Surgery	3 days	December	Lectures, Clinics, Symposiums	Hotel and Hospitals	Out of state medical school	Licensed physicians	$2 (none for Obs. and Ped.)	286 (75 in Obs. and Ped.)	St. Health Dept., St. Med. Soc.
Grand Junction	Mesa Co. Med. Soc.	Chairman	General	2 days	April	Lectures and Discussion	Hotel	In state and out of state	Physicians of western states	..	50	Medical Society
Pueblo	Pueblo Co. Med. Soc.	Chairman, Spring Clinics Comm.	General	2 days	April	Lectures	Hotel	In state and out of state	Licensed M.D.'s	$2	149	Medical Society
Connecticut												
New Haven	St. Med. Soc. and Yale U. Sch. of Med.	Chairman, Clin. Congress Comm.	General	3 days	September	Lectures, Clinics, Symposiums, Discussions	University and Hospitals	In state, out of state and medical school	M.D.'s	$2	540	Medical Society
District of Columbia												
Washington 1.	G. Washington U. Sch. of Med.	Dean	General	1 to 2 days	February	Lectures, Clinics, Symposiums, Demonstrations	Medical School	Medical School faculty	Alumni	No	250	University
2.	Georgetown U. Sch. of Med.	Chairman, Program Comm.	Modern Advances in Medicine	3 days	September	Lectures, Clinics, Symposiums	Medical School and Affiliated Hospitals	In state and out of state (majority are medical school faculty)	Alumni and guests	No	180	Medical School
3.	Med. Soc. of D. C.	Secretary	Gastroenterology	3 days	April	Lectures and Demonstrations	Hotel	In state and out of state	Practicing physicians	..	600	Medical Society
Georgia												
Atlanta	Fulton Co. Med. Soc.	Chairman, Atlanta Grad. Med. Assembly	General	3½ days	January	Lectures and Clinics	Hotel	Out of state medical school faculty	Practicing physicians	$5	550	Medical Society
Kansas												
Kansas City	Med. Sch. Univ. of Kansas	Dean	Surgery, Fractures, Obstetrics and Gynecology	4 days	May	Lectures and Clinics	University Hospital	Medical School faculty	Practicing physicians	No	110	Medical School
Kentucky												
Louisville	Jefferson Co. Med. Soc.	Chairman, Program Comm.	Hematology and Bacteriology	Twice monthly	Feb. to June, Sept. to Dec.	Lectures	Amphitheatre, City Hospital	Medical School faculty	Co. Med. Soc. members and interns	No	92	Medical School and Co. Med. Soc.
Louisiana												
New Orleans	Orleans Parish Med. Soc.	President	General	4 days	February or March	Lectures, Clinics	Hotel	Out of state medical school	Licensed physicians	$10	907	Parish Medical Society
Massachusetts												
Cambridge	Mass. Med. Soc. (N. Eng. P. G. Assembly)	Secretary, St. Med. Soc. P. G. Comm.	General	2 days	Fall	Lectures, Clinics, Symposiums	Theatre, Medical School	Out of state medical school	Licensed physicians	$3	925	Medical Society
Michigan												
Detroit 1.	Wayne Co. Med. Soc., City, St. Dept. of Health, Wayne U. Coll. of Med., Amer. Acad. of Ped., Mich. Soc. for Ment. Hyg.	Dean, Wayne U. Coll. of Med.	Pediatrics	1 day weekly, 4 times	April	Conferences, Questions, Discussion	Hospital and Medical School	In state and out of state medical school faculty	M.D.'s	No	...	.....
2.	Amer. Acad. of Ped., Henry Ford, Children's and Herman Kiefer Hosps.	Chairman, Program Comm.	Pediatrics	3 days	April	Lectures and Clinics	Hospitals	In state	M.D.'s	No	...	.....
Missouri												

dren's and Herman Kiefer Hosps.

Missouri												
Kansas City 1.	Kansas City S. W. Clin. Soc.	Director of Clinics	Medicine, Surgery and Specialties	4 days	October	Lectures and Symposiums	Municipal Auditorium	In state and out of state	Ethical physicians of S. W. territory	$5	750	Clinical Society
2.	Kansas City S. W. Clin. Soc.	Director of Clinics	Medical Military	2 days	March	Lectures and Clinics	Hospital	In state and out of state	Ethical physicians and Reserve Officers	No	300	Clinical Society
St. Joseph	St. Joseph Clin. Soc.	1st Vice-President	General	2 days	Spring	Lectures and Round Table Discussions	Hotel	Out of state	Physicians in good standing	No	200	Society members
New Jersey												
Newark	St. Med. Soc. and Essex Co. Med. Soc.	Chairman, Clin. Conf.	Mixed	2 days	October	Lectures, Clinics and Demonstrations	Hospitals	In state, hospital staff	M.D.'s	No	800	.....
New York												
Buffalo	Med. Soc. St. of N. Y., St. Dept. of Health	Chairman, Council Comm. Pub. Health and Educ.	Pneumonia	1 day	February	Lectures, Clinics and Demonstrations	Hospital	In state medical school faculty	M.D.'s	No	63	St. Dept. of Health
New York City	N. Y. C. Dept. of Health, 5 Co. Med. Societies	Asst. Director, Bur. of Labs.	Bacteriologic Technic and Interpretation in Pneumonia	6 hours	October and November	Lectures and Laboratory Exercises	Administration Bldg. and Lab.	In state	Physicians	No	158	N. Y. C. Dept. of Health
			Serum Therapy in Pneumonia	3 hours	November and December	Lectures	Five Co. Med. Soc. auditoriums	Local	Physicians	No	...	N. Y. C. Dept. of Health, Co. Med. Socs.
			Technic and Serum Therapy in Pneumonia	1 session	January, February, March	Ward Demonstrations	Hospitals	Local	Co. Med. Soc. members	No	5 each session	Co. Med. Socs., N. Y. C. Dept. of Health, Hospitals
Troy	Med. Soc. St. of N. Y., St. Dept. of Health	Chairman, Council Comm. Pub. Health and Educ.	Pneumonia	1 day	March	Lectures, Clinics, Demonstrations	Hospital	In state and out of state medical school faculty	M.D.'s	No	44	St. Dept. of Health
Oklahoma												
Oklahoma City	Oklahoma City Clin. Soc.	Director of Clinics	General	4 days	November	Lectures and Symposiums	Hotel	In state and out of state	Co. Med. Soc. members	$10	550	Clinical Society
Pennsylvania												
Philadelphia	Temple Univ. Sch. of Med.	Dean	Mixed	2 days	June	Lectures, Ward Walks	Medical School and Hospital	Medical School faculty	Alumni	$2	...	Medical School
Rhode Island												
Pawtucket	St. Med. Soc. and Mem'l Hosp.	Physician-in-chief, Hospital	Medicine, Surgery and Specialties	1 day	November	Lectures	Hospitals	In state and out of state	M.D.'s	No	350	Medical Society
Providence	St. Med. Soc.	Chairman, Clinic Comm.	General	2 days	June	Lectures, Clinics and Symposiums	Medical Library and Hospitals	In state and out of state	M.D.'s	No	350	St. Med. Soc. and Hospitals
South Carolina												
Anderson	Anderson Co. Med. Soc.	President, Piedmont P. G. Clin. Assembly	General Medicine and Surgery	3 days	September	Lectures	Auditorium of Nurses' Home, Hospital	In state and out of state medical school	Licensed physicians	$2	100	None
Tennessee												
Varies	Middle Tenn. Med. Assn.	Chairman, Program Comm.	General Medicine and Surgery	2 days	May and November	Lectures	Various	In state	Physicians of Middle Tenn.	$3 per year	150-200	None
Varies (Jackson, alt. years)	Western Tenn. Med. and Surg. Assn.	Secretary	General Medicine, Surgery, Obstetrics and Specialties	1 day	May	Lectures and Discussion	Various	In state medical school faculty	Licensed physicians	$2	80	Medical and Surgical Association
Memphis	Mid-South P. G. Med. Assembly	Secretary-Treasurer	General Medicine and some Specialties	4 days	February	Lectures, Symposiums, Round Table Discussions	Hotel	In state and out of state	M.D.'s and senior medical students	$5	750	Postgraduate Assembly
Knoxville	Tenn. Valley P. G. Med. Assembly	Secretary-Treasurer	General	3 days	June	Lectures and Round Table Discussions	Hotel	In state and out of state med. sch. faculty and practicing physicians	St Med. Soc. members	$4	...	Postgraduate Assembly
Nashville	Vanderbilt U. Sch. of Med.	Director, P. G. Instruction	General Medicine and Military Medicine	2 or 3 days	June	Lectures, Demonstrations and Clinics	Medical School and Hospital	Faculty members and officers of Med. Corps, U. S. Army	Reserve officers of Army, Navy and Nat'l Guard and other M.D.'s	No	142	School of Medicine

TABLE 2.—CLINICAL CONFERENCES, GRADUATE ASSEMBLIES AND STUDY COURSES—LESS THAN FIVE DAYS, 1938-1939—Continued

Location of Course	Sponsoring Agencies	Director of Program	Subjects	Duration of Course	Time Given	Type of Instruction	Facilities for Graduate Program	Instructors	Eligible for Admission	Registration Fee	Approximate Yearly Attendance	Contributing Agencies and Funds
Texas												
Dallas	Dallas Co. Clin. Soc.	Director of Clinics	General	4 days	March	Lectures, Symposiums, Clinics, Clin. Path. Conf., Round Table Luncheons	Hotel and Hospital	Out of state medical school	M.D.'s, interns, senior medical students	$10	650	Clinical Society
Houston	P. G. Med. Assembly of S. Texas	Chairman, Program Comm.	General	3 days	December	Lectures, Clinics, Symposiums, Motion Pictures	Hotel	Out of state, mostly medical school	Members of medical societies	$10	500-700	So. Texas Dist. Med. Soc.
San Antonio	International P. G. Med. Assem., S. W. Texas	Chairman, Program Comm.	General and Special	3 days	January	Lectures, Dry Clinics, Symposiums, Round Table Discussions	Hotel	In state and out of state	M.D.'s	No	800	Medical Assembly
Prairie View	P. G. Assembly for Negro Physicians	Chairman, Steering Comm.	Pediatrics, Obstetrics, Venereal Disease and Physical Diagnosis	4 days	March	Lectures, Demonstrations, Lantern Slides, Motion Pictures and X-Rays	Prairie View College	In state and out of state	Negro physicians	$1	72	Texas St. Bd. of Health, Texas T. B. Assn., Julius Rosenwald Fund
Vermont												
Burlington	St. Med. Soc.	Acting Dean, U. Vt. Coll. of Med.	General Medicine and Surgery	2 days	May	Lectures, Demonstrations, Clinics	Hospital	In state (majority)	St. Med. Soc. members	No	225	St. Med. Soc. and University
Wisconsin												
Milwaukee	Med. Soc. of Milwaukee Co.	Chairman, Program Comm., Chairman, P. G. Educ. Comm., Ex. Secretary Co. Med. Soc.	Mixed	4 days	Spring, Fall	Lectures, Clinics, Symposiums	Club Rooms and Hospital	Out of state, mostly medical school	Co. Med. Soc. members	$3	300	Co. Med. Society

(Continued from page 781)

nent out of state physicians who had distinguished themselves in a field of medicine. Local physicians sometimes supplemented their guest speakers on graduate assembly programs, but conferences generally featured out of state physicians.

Dry clinics and other demonstrations utilizing clinical material have been sponsored in a number of clinical conferences in urban centers, but because of the number of physicians in attendance it was sometimes difficult to keep groups small enough to make clinical observations on patients who were demonstrated. Bedside teaching was rarely attempted for the same reason. Almost without exception, study courses featuring clinical material were designed for practicing physicians.

Some conference programs were arranged according to the needs of the physician who had attended previous conferences. In some states the committee of physicians directing the clinical conference also included physicians active in the state medical society's graduate committee, and in these states duplication of effort and multiplication of graduate activities were avoided.

It has been found difficult to individualize clinical conference programs, particularly for large professional audiences composed of physicians with differing backgrounds and practicing under different circumstances. Physicians from rural areas, for example, might not follow some of the technics employed in highly specialized clinical centers; whereas physicians from urban areas would have difficulty in examining and treating patients under the adverse conditions of rural practice. On this account even within one state it has been necessary to develop more than one general type of program to meet the varying needs of the physicians within the area of the state.

SUMMARY

1. Fifty itinerant courses of continuation study for practicing physicians were offered in or near the home communities of physicians in thirty-eight states during 1938-1939. State medical societies sponsored the majority, with state boards of health as well as extension divisions of universities and medical schools as joint sponsors in many states. Medical schools sponsored most of the fifty-nine opportunities where clinical instruction might be featured at one center over five or more days in twenty-three states and the District of Columbia.

2. A total of forty-three states and the District of Columbia provided a form of continuation study for physicians and, when clinical conferences were included, forty-six states offered graduate opportunities.

3. From 550 to 600 (median) physicians enrolled for continuation study in the states with registration figures. Attendance at clinical conferences varied from 200 to 225 (median). According to reports received, the approximate attendance totaled 37,500 during 1938-1939.

4. One half of the itinerant study courses offered near the home communities of physicians were directed by state medical societies.

5. Pediatrics, obstetrics, medicine, special subjects and surgery were included in the graduate instruction given. Instruction featuring clinical material included laboratory studies in a variety of subjects as well as experience and observation in hospital wards and outpatient clinics.

6. Twenty-six of fifty statewide courses were of five or more days' duration and included symposiums, clinics, demonstrations and discussions in hospitals wherever possible. The facilities of medical schools were fre-

quently available for courses emphasizing clinical instruction at one center.

7. Out of state instructors participated as frequently as physicians of the same state; medical schools contributed half of the instructors to itinerant courses and conducted most of the instruction in which clinical material was featured over five or more days.

8. Registration fees were charged infrequently and in no statewide course did amounts exceed $15. For graduate programs stressing clinical instruction at one center, larger fees were sometimes required.

9. There were greater opportunities for continuation study featuring clinical instruction than is generally appreciated.

10. Correlation and continuity of the graduate activities of state medical societies and of state boards of health, medical schools, hospitals and other organizations were being accomplished in several states.

RELATED GRADUATE ACTIVITIES

Associated State Committees on Postgraduate Education

At the 1937 annual session of the American Medical Association, the Associated State Committees on Postgraduate Education were organized by Dr. Leroy E. Parkins, Boston, secretary of the Committee on Postgraduate Instruction of the Massachusetts Medical Society. Representatives from thirty-one state society committees attended this initial meeting in Atlantic City. A permanent organization was effected with Dr. James D. Bruce, Ann Arbor, Mich., chairman, Dr. Parkins, secretary, and Dr. Thomas P. Farmer, Syracuse, N. Y., as regional chairman. The associated committees requested official approval of their organization, since it was anticipated that the group would assume some function in the field of graduate medical education. The associated state committees have met each year since 1937 at the time of the annual session of the American Medical Association to discuss recent problems with which state medical societies are concerned. The representatives in this group are actively engaged in graduate teaching and are anxious to receive suggestions from others with related problems.

Representatives from seventeen states were in attendance at the second meeting, held in San Francisco in June 1938. The House of Delegates and the Council on Medical Education and Hospitals of the American Medical Association were represented also. The committee discussed means of providing better medical service to the public by offering practicing physicians in the various states opportunities to learn of recent advances in medicine through a continuous program of graduate instruction. The principal action of this meeting of the committees was a unanimous vote to cooperate with the Council on Medical Education and Hospitals in its present study of continuation courses for practicing physicians in the United States. The associated state committees recommended that all studies in the field of graduate medical education be made in cooperation or collaboration with this Council. It was further recommended that all forms of medical extension courses offered to practicing physicians should be conducted through the offices of state medical societies.

A permanent organization was established and a constitution and by-laws was adopted at the third annual meeting of the associated postgraduate committees, held in St. Louis in May 1939. Under the constitution and by-laws the associated postgraduate committee is defined as a voluntary association of state medical society postgraduate committees and is composed of members of these committees. The officers of this organization consist of a chairman, vice chairman, secretary-treasurer and regional chairmen. At the St. Louis meeting Dr. James D. Bruce was elected permanent chairman, Dr. Thomas P. Farmer vice chairman and Dr. Leroy E. Parkins secretary-treasurer.

A joint exhibit on graduate medical education to be held at the annual session of the American Medical Association was discussed at the last meeting of the committees. It was recommended again that state medical associations be urged to administer continuation courses for practicing physicians, cooperating where desirable with other interested agencies. A report from the Illinois State Medical Society committee was presented at this meeting and the graduate activities in Indiana, Massachusetts, Michigan, Oklahoma and Washington were discussed.

American College of Physicians

In 1938 the Committee on Postgraduate Education of the American College of Physicians, Dr. William J. Kerr, San Francisco, chairman, arranged for two weeks of instruction immediately preceding the annual session of the college in April. The cooperation of Harvard University Medical School, of Columbia University College of Physicians and Surgeons and of the University of Pennsylvania Graduate School of Medicine was obtained to provide graduate instruction for fellows and associates of the college. Four of the seven courses offered were given, two in Philadelphia in cardiovascular and gastro-enteric disease, one in New York City in general medicine and one in Boston also in general medicine. Registration totaled 117. The college financed promotion, advertising, printing and registration for this program; each school provided faculty and facilities. An appropriation of $500 was made by the Board of Regents of the American College of Physicians for the graduate instruction given in 1938.

Similar graduate courses were provided during the two weeks preceding the 1939 annual session of the college. Dr. Hugh J. Morgan, Nashville, Tenn., was chairman of the postgraduate committee for this year. Admission to instruction was open to physicians attempting to qualify for membership in the college as well as to members. Two courses were given at Johns Hopkins University School of Medicine and the University of Maryland School of Medicine, Baltimore, one in general medicine and one in cardiovascular and respiratory diseases. Instruction in cardiovascular renal disease was given at Northwestern University Medical School, Chicago, and two courses were given at Washington University School of Medicine, St. Louis, one in cardiovascular disease and one in diseases of the glands of internal secretion. Registration totaled 120. Tuition for the two week courses was $40 and for the one week courses—given at Washington University—$20.

In addition to the one and two week review courses given during the past two years under the sponsorship of the American College of Physicians, the college in 1939 granted three research fellowships in the field of medicine. The college is now cooperating with the American Medical Association and with the American Board of Internal Medicine in attempting to elevate standards of medical practice and to encourage graduate medical education. The Board of Governors of the American College of Physicians appointed a committee on postgraduate courses, consisting of five members with Dr. Henry M. Thomas Jr., Baltimore, as chairman for the coming year, to meet the demand for small, personal, specialized courses in the field of internal medicine.

American Academy of Pediatrics

The Committee on Postgraduate Education of the American Academy of Pediatrics, of which Dr. George M. Lyon is chairman, has prepared a suggested outline for the organization of continuation courses for rural physicians. This outline states that in planning a statewide graduate program such factors as the geographic, vocational, economic and population characteristics of the area must be considered. The interest of state medical association committees on maternal and child health and on graduate education and other such committees must be considered also, as well as the possibility of cooperation with the state department of health. Graduate opportunities for practicing physicians in local teaching centers are to be considered as well as opportunities for these physicians to leave for sufficient periods to engage in continuation study elsewhere.

Representation on the committee on maternal and child hygiene or committee on graduate clinical education in the state medical association was emphasized. When advisable, representatives of

special pediatric or obstetric societies should be selected to confer with the state medical association's committee in an advisory capacity. It is of fundamental importance that the committee of the state association be actively engaged in directing the graduate program and be representative.

The academy's committee on postgraduate education states that extension departments of universities may take an active part in developing a medical extension program on a high academic plane. In this connection the importance of a field organizer in stimulating the interest of practicing physicians in each locality is emphasized. Personal interviews by an individual experienced in work of an extension department is helpful.

Typed, personal letters from official representatives of the state medical association explaining the relationship of the medical profession to the graduate courses encourage attendance. Whenever possible, physicians should be urged to sign up for instruction beforehand so that the approximate size of classes in each locality can be determined. The needs of practicing physicians should be noted and catered to whenever possible. The usefulness of printed pamphlets giving specific information as to place, hour of meeting and general outline of course, fees and other notes is emphasized by the committee. Each physician in the district should be sent a prospectus, as well as special letters to those not enrolled for the course.

It is important that local arrangements and details be carefully checked so that no interruptions in the schedule of instruction will occur. An administrative representative from the state medical association should be present at the opening session of each meeting so that the instructor is properly introduced to his professional audience. Technical assistance with movies, lantern slides and other visual aids to instruction are essential. A nurse should be present when clinical material is demonstrated. Whenever suitable, local clinical facilities such as hospitals should be utilized; otherwise, public buildings offer common meeting places.

The academy's outline attempts to insure: (1) an effective program; (2) a program suitable to the physicians of the locality; (3) presentation of stimulating and helpful material; (4) adequate build-up prior to meetings for full attendance and proper appreciation. The technic of promotion is most important and must be better understood and developed to insure success.

Social Security and Other Federal Acts

The provisions of the Social Security Act make no specific stipulation for federal financial participation in supporting graduate medical education. Since February 1936, however, which marks the beginning of social security appropriations, there has occurred certain and often initial participation of various state agencies, under the impetus of federal grants, in the graduate instruction of practicing physicians. Under the present interpretation of the act, graduate teaching may originate locally within each state, may be administered locally under the supervision or approval of the state, with financial participation by the state itself, but must finally be approved by the proper bureaus in Washington before federal funds are allocated. The state agency, usually the health department, must also provide for cooperation with medical, nursing and welfare organizations.

Eight million dollars was appropriated for the fiscal year 1937-1938 for grants in aid to the states for public health work, as authorized under title VI of the Social Security Act. The responsibility of administering grants in aid rests with the United States Public Health Service. During the fiscal year which ended June 30, 1938, $1,116,000 was allocated to the states for training public health personnel, and 4,300 public health workers were included.

Under a separate act an additional $3,000,000 was appropriated by Congress for the fiscal year ending June 30, 1939, to assist states in the prevention, control and treatment of venereal disease. The financing of graduate courses for practicing physicians has resulted. During 1938, 422 physicians in fifteen medical and in other centers received instruction in syphilis and gonorrhea.

Appropriations have been made and similar programs have been initiated in various sections of the country by health agencies for other diseases, as cancer, tuberculosis and pneumonia, and in each the instruction of physicians has been considered.

The Children's Bureau of the United States Department of Labor has an annual appropriation of $3,800,000 for aiding the states in their maternal and child health programs. During the fiscal year which ended June 30, 1938, lecture courses in obstetrics for local practicing physicians were held in 316 centers in thirty-two states. Lecture courses in pediatrics were held in 243 centers in twenty-six states. The bureau also receives $2,850,000 annually for programs for crippled children. As a result, graduate courses for local physicians in the early recognition and treatment of crippling medical and surgical conditions were provided in seven states.

Lending Library Services for Practicing Physicians

One of the problems with which physicians practicing outside medical centers are faced is the availability of ready reference material to the extensive literature of medicine. It is impossible for physicians to subscribe to all periodicals which must be referred to in case studies. In fact, many medical libraries find it difficult to acquire or have access to the 1,200 or more periodicals, the increasing number of monographs and textbooks on medicine in daily use.

Medical societies and academies of medicine have aided in the establishment of libraries which provide facilities for practicing physicians. Only a few, however, have developed their own complete files of periodicals in sufficient numbers to serve the medical profession adequately. The best known among these are the libraries of the New York Academy of Medicine, the Medical Society of the County of Kings and the Academy of Medicine of Brooklyn, the Boston Medical Library, the Library of the College of Physicians, Philadelphia, and the Library of the Medical Society of the City and County of Denver. State medical libraries have been developed in three states, and state medical associations in other states have begun reprint and periodical libraries for the use of practicing physicians.

The package library service conducted by the American Medical Association has been freely utilized. This service is available to all members of the Association and individual subscribers to any of its publications. Practicing physicians now have lending library services available in thirty states. These include Arizona, California, Colorado, the District of Columbia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia and Wisconsin.

While the lending services of medical libraries in the several states have been helpful in supplying physicians with reprints, periodicals, monographs and textbooks, the satisfactory use of such a service depends on the library having two or more copies of material to which frequent reference is made. Whenever this is too expensive to be practical, the Bibliofilm Service of Washington, D. C., can be utilized. Thus, physicians are provided with reference to the complete collections of the Army Medical Library and, by cooperative agreement with this library, the libraries of the United States Department of Agriculture, the Geological Survey and the Bureau of Standards. The use of microfilms is especially helpful in connection with references to pages in bound volumes of considerable value such as incunabula and when duplicate volumes are not available.

Graduate Opportunities for Negro Physicians

During the past three years, opportunities for Negro physicians to continue medical instruction have been offered in fourteen states and the District of Columbia. Two medical schools have offered instruction to Negroes, and three other medical schools have opened their facilities to Negro physicians for short courses in general medicine and in such special subjects as syphilis, gonorrhea and tuberculosis. Two Negro universities have provided meeting places for instruction in general medicine and in special subjects. Two hospitals with facilities for colored patients, state boards of health, state tuberculosis associations and two state medical societies have acted as sponsors for courses. States in which continuation study by colored physicians has been offered include Alabama, Georgia, Illinois, Kentucky, Louisiana, Michigan, Mississippi, Missouri, North Carolina, Pennsylvania, South Carolina, Tennessee, Texas and Virginia.

PROGRESS REPORTS BY STATES: 1938-1939[1]

Alabama

Realizing the need for a permanent program of organized postgraduate teaching and clinical instruction by representative specialists, the Committee on Postgraduate Study of the Medical Association of the State of Alabama, with the cooperation of the state health officer and the director of the Medical Extension Division of Tulane University of Louisiana, formulated such a plan this year. The association agreed to allocate $1,000 annually during the next three years; the Commonwealth Fund of New York made a substantial contribution and physicians enrolling for each course were charged a fee of $5. Selection of subjects and other details of the postgraduate course were considered by the state board of censors, the association's committee on postgraduate study and the director of the medical extension division.

Two out of state medical school instructors were engaged for the first courses in general medicine. Round table discussions and clinical demonstrations were proposed whenever possible. A consultation service was offered to physicians requesting the instructor to see patients when in their community. Courses were arranged on the circuit plan, the state being divided into six circuits, each with five teaching centers. Physicians practicing in every county of the state will have access to these centers. A provision has been made also for the entire series to be given for the Negro physicians of Jefferson County.

The field representative of the Division of Medical Extension, Tulane University of Louisiana, makes preliminary arrangements in each locality for the organization and conduct of instruction.

California

The Committee on Postgraduate Activities of the California Medical Association in cooperation with the Bureau of Child Hygiene of the California Department of Public Health engaged an out of state medical school instructor to give a series of postgraduate conferences on maternal care during April and May 1939. Twenty conferences were scheduled in as many localities of the state. In addition the instructor gave lectures at the University of California Medical School, San Francisco, on two days each week. No registration fees were charged.

Connecticut

Five three day courses were offered to practicing physicians who registered this year at the regular assemblies of the Annual Clinical Congress of the Connecticut State Medical Society and Yale University School of Medicine. Comprehensive discussion of each of the following subjects was provided: neuropathology, early treatments of fractures, diagnostic roentgenology, recognition of tumors of the skin, and contraceptive technic. One hundred and forty of the 540 physicians who registered for the clinical congress enrolled in these special courses.

Six postgraduate conferences on clinical problems were given during February and March 1939 at the New Haven Hospital under the auspices of Yale University School of Medicine. Instruction included those aspects of obstetrics and gynecology encountered in the general practice of medicine. Conferences were held to allow physicians to discuss their practical problems. A registration fee of $10 was charged. Twelve physicians enrolled.

Florida

The Committee on Medical Postgraduate Course of the Florida Medical Association, in addition to sponsoring the annual short course on general subjects of medicine, gave special instruction in diseases of the chest this year. Registration for the special course which was held in conjunction with the annual graduate short course from June 19 to 24, 1939, was limited to seventeen. An out of state instructor lectured and gave demonstrations on examinations of the chest, fluoroscopy and interpretation of roentgenograms. Five hours of instruction was scheduled for each day. A registration fee of $5 was charged.

Georgia

The Committee on Postgraduate Medical Education of the Medical Association of Georgia, Dr. G. Lombard Kelly, chairman, recommended in April 1939 that postgraduate medical instruction should be conducted in connection with the two medical schools of the state. The committee believed that such instruction can be more effective in small groups of physicians and that individual instruction should be available to physicians desiring special courses. It was suggested that Atlanta, Augusta, Macon and Savannah might be developed as teaching centers and that it might be desirable to extend postgraduate instruction to the local communities of physicians as well. Financial support of such a program was recommended.

Illinois

The president of the Illinois State Medical Society, Dr. Samuel E. Munson, in his 1939 address stressed the need for the establishment of a plan of postgraduate study for physicians practicing outside the Chicago area. At the last annual meeting Dr. F. G. Norbury introduced a resolution which would provide for a temporary committee of five to study methods of improving postgraduate facilities, especially postgraduate extension courses for Illinois physicians. This committee would report to the house of delegates of the state society at its next annual meeting. The resolution was adopted with the following comments:

> The committee on resolutions believes that systematic courses for postgraduate study should be developed under the auspices of the Illinois State Medical Society. Such courses might be given in part in teaching institutions and in part as extension courses in the councilor districts of the state. It is believed that a special committee should study plans operated by other state societies and prepare a program for postgraduate teaching in Illinois. It is suggested that five of the committees having educational functions in the state society and the Department of Public Health of the State of Illinois might be represented on this special committee.

An eight weeks course of lectures, discussions and demonstrations of clinical material in syphilis was begun on April 4, 1939, at the University of Illinois College of Medicine. This instruction was given in two hour periods twice a week by the department of dermatology in cooperation with other departments of the medical college at the Research and Educational Hospital. The course will be repeated four times each year. Registration has been limited to twenty. Licensed practicing physicians were accepted on payment of the registration fee of $10. The Illinois State Department of Public Health aided in support of the instruction with federal funds.

The Clinical Program Committee and Venereal Disease Commission of the Chicago Medical Society began a series of monthly programs which will constitute a symposium on syphilis at the Municipal Hygiene Clinic, Chicago. The first discussion on March 27, 1939, included lectures and presentation of cases of neurosyphilis. Three local consultants participated. No registration fees were charged.

A two day institute for Negro physicians was conducted in April 1939 by the Tuberculosis Institute of Chicago and Cook County. The development, control, detection, prevention and treatment of tuberculosis were considered.

Indiana

Dr. Herman M. Baker, president of the Indiana State Medical Association, in October 1938 emphasized the responsibility of organized medicine for the graduate education of physicians. He cited the need for a full time executive officer to promote the organization and conduct of postgraduate courses in the local communities of practicing physicians. To discharge this responsibility properly it was estimated that it would require about $12,000 each year and a possible increase in the dues of members of the association. As a preliminary step in a statewide program of postgraduate instruction, it was recom-

1. See Graduate Medical Education: Progress Reports of the Field Study on Graduate Medical Education in the United States Being Conducted by the Council on Medical Education and Hospitals, Organization Section of THE JOURNAL: Arizona, Aug. 5, 1939, p. 514; Arkansas, Feb. 11, 1939, p. 550; District of Columbia, July 15, 1939, p. 237; Louisiana, April 22, 1939, p. 1599; Maryland, July 22, 1939, p. 337; Missouri (Report of Recent Progress), Dec. 17, 1938, p. 2308; New Mexico, Aug. 12, 1939, p. 599; North Dakota, July 15, 1939, p. 237; Oklahoma, March 4, 1939, p. 851; Pennsylvania, April 1, 1939, p. 1262; Texas, Aug. 12, 1939, p. 599; Virginia, Aug. 12, 1939, p. 600; West Virginia, Aug. 5, 1939, p. 514.

mended that five teaching centers be developed in the state similar to the one now being conducted in Muncie by the Delaware-Blackford County Medical Society. The council of the state medical association is giving consideration to these proposals.

The Grant County Medical Society in cooperation with the Committee of Postgraduate Education of the Indiana State Medical Association, the Department of Postgraduate Education of the Indiana University School of Medicine and the Bureau of Maternal and Child Health of the Indiana State Board of Health held a three day postgraduate conference on obstetrics at the Marion General Hospital, Marion. The resident adviser and research director in obstetrics and gynecology at the school of medicine conducted this course. This is the first program of its kind, and it is anticipated that similar efforts will be made in other selected areas of the state. Cases were presented, round table discussions were held and lectures illustrated with movies completed the program. No registration fees were charged.

The Indiana University School of Medicine began in October 1938 two week courses in obstetrics and pediatrics for practicing physicians. The lectures, clinics, symposiums and demonstrations conducted at the medical center were sponsored by the Indiana State Medical Association and the Indiana State Board of Health. Each class was limited to four physicians. Applicants must be recommended by their county medical societies and endorsed by the postgraduate committee of the state medical association. The director of postgraduate education in the medical school is assisted by members of the departments of obstetrics, pediatrics and pathology. Outpatient delivery service, observation in the hospital on the obstetric and pediatric services, conferences and discussions on antepartum and postpartum care, clinics and bedside instruction were included. Clinical pathologic instruction was given daily. Instruction in anatomy of the pelvic region was included. Physicians had an opportunity to witness all abnormal deliveries, attend ward rounds and observe modern medical care.

Iowa

The Council of the Iowa State Medical Society adopted a revised plan of postgraduate education for the state in July 1938. The committee on postgraduate medical education was selected by the councilors so that each councilor district might be represented. This newly formed committee of twenty-eight members conferred with practicing physicians in their respective districts to select the type of postgraduate course desired. In this manner it was possible for the speakers' bureau of the state medical society to present courses planned by the physicians themselves. District and county societies in practically every section of the state have availed themselves of the services of the speakers' bureau.

A study course in the diagnosis of pneumonia was conducted by the director of the state hygienic laboratory in Iowa City over two periods of three days each in December 1938. Twenty physicians registered for this instruction, which was financed with funds from the United States Public Health Service.

Kansas

The Committee on Control of Cancer of the Kansas Medical Society, in cooperation with the Kansas State Board of Health and with financial assistance from the United States Public Health Service, arranged in August 1938 for a course of instruction in cancer in six sections of the state. An out of state speaker was employed during September and again during March 1939, when six other localities were visited. Meetings in each town began at 4 p. m. and continued through 10 p. m. No registration fees were charged.

Kentucky

The chairman of the committee on extension course expressed the belief at the 1938 annual meeting of the Kentucky State Medical Association that other states had found need for conducting postgraduate programs in a systematic way, selecting definite centers where postgraduate meetings might be held. It was emphasized that such a plan could best be carried out in Kentucky by the councilor in each respective district or under the direction of the council of the state association. The committee recommended that each councilor district have at least two postgraduate meetings each year.

Members of the state association's committee on medical education expressed the opinion that this committee could be made a useful and important part of the association and that it should be made permanent, the members being appointed by the president at the beginning of the year. They also expressed the belief that the *Kentucky Medical Journal* is a most useful source of postgraduate education and that its usefulness in this connection might be extended.

Louisiana

The Flint Goodridge Hospital of Dillard University, New Orleans, in October 1938 began a series of monthly seminars for Negro physicians. Two hours was devoted to discussions by medical school instructors or by members of the hospital staff. Attendance has averaged twenty. No registration fees were charged. Biweekly lectures in tuberculosis and syphilis also began in October 1938. These were under the direction of Dr. John H. Musser, director of the department of medicine. It was estimated that 25 per cent of the physicians of New Orleans registered. No fees were charged.

In addition to the recently developed programs, the hospital has given a two weeks postgraduate course of lectures, demonstrations and clinics in general medicine and surgery each June for four years. Medical school instructors, as well as one or two visiting lecturers, constitute the faculty. Annual attendance has averaged forty physicians, representing approximately one third of the Negro physicians of Louisiana and one fifth of those practicing in the states of Louisiana, Alabama, Arkansas, Mississippi and Texas. A registration fee of $5 is charged. The administrative cost of these educational programs is provided by a member of the board of trustees of the hospital. Instructors donate their services.

Maine

In November 1938 the county medical society secretaries voted to endorse a proposal whereby the Committee on Graduate Education of the Maine Medical Association would develop a program of instruction to be given at the various county society meetings of the state. This proposal was presented to the house of delegates of the state association in June 1939 and it is anticipated that it will be put into effect in the autumn of 1939.

Massachusetts

The Committee on Postgraduate Instruction of the Massachusetts Medical Society presented the first annual New England Postgraduate Assembly under the auspices of the society during two days of November 1938. Harvard University provided an assembly hall. Ten out of state physicians were guest speakers. General subjects of medicine were discussed. A registration fee of $3 was charged, which was sufficient to finance the enterprise. Total attendance was 925, physicians coming from each of the New England states and from seven other states.

The committee on postgraduate instruction of the state medical society, with the cooperation of the Massachusetts Department of Health and the United States Public Health Service, began teaching clinics in gonorrhea and syphilis in December 1938 in Boston and in Springfield. Practical instruction in the diagnosis and treatment of these diseases was continued twice a week for twenty-five consecutive weeks.

Michigan

The Executive Committee of the Council of the Michigan State Medical Society complied with the request of the chairman of the advisory committee on postgraduate medical education in October 1938 that the chairmen of the committees on preventive medicine, cancer, radio, maternal health, hygiene and the joint committee on health education be made members ex officio of the postgraduate committee and be urged to attend the meetings of this committee.

The state medical society awarded recognition in September 1938 to those physicians who received graduate instruction sponsored by the society during the past four years. Physicians completing this period of study were designated as associate fellows in graduate education of the state society. Fellowships will be conferred on them on completion of a second similar

term. More than 500 physicians had participated in extramural or intramural courses. The advisory committee on postgraduate medical education had previously established a unit system of credit and determined the minimum requirements for associate fellowships and fellowships in postgraduate education. The first awards of full fellowships will be made this year.

A postgraduate course in pediatrics was given during three days of April 1939 in Detroit. Graduate conferences for physicians were sponsored by the Wayne County Medical Society, the Detroit Department of Health, the Wayne University College of Medicine, the Michigan Branch of the American Academy of Pediatrics, the Michigan Society for Mental Hygiene, Inc., and the Michigan Department of Health. Three Detroit hospitals, the Henry Ford Hospital, the Children's Hospital and the Herman Kiefer Hospital, provided facilities.

Beginning in October 1938 the Michigan Department of Health sponsored at the University of Michigan Medical School, Ann Arbor, two week courses of intensive training and observation in obstetrics and gynecology at the University Hospital. There is a senior instructor in obstetrics in charge, and two practicing physicians may register for this course at one time. No registration fees were charged. Sixty-eight physicians have enrolled to date.

During the spring of 1939 an educational program for Negro physicians was conducted by one of the staff physicians of the Michigan Department of Health. Syphilis was emphasized and both professional and lay instruction was included.

The Wayne County Medical Society, in an effort to expand local educational facilities for physicians, will sponsor graduate courses with Wayne University College of Medicine. In the autumn of 1939 individual instruction at the bedside will be stressed, with the faculty and facilities of the medical college and the City of Detroit Receiving Hospital being available. Groups of not more than six physicians will be enrolled for each session. Weekly ward rounds emphasizing medical diagnosis and treatment will be under the direction of Dr. Gordon Myers, professor of medicine. No registration fees will be charged.

Minnesota

The Minnesota Department of Health, Division of Preventable Diseases, is sponsoring one day of instruction in syphilis and gonorrhea in eight centers of the state during October 1939. The Syphilis Committee of the Minnesota State Medical Association, in consultation with the department of health, selects the subjects for the lectures and round table discussions. Minnesota physicians, chiefly from the University of Minnesota Medical School, will give the instruction, which will be available to all licensed physicians. No registration fees will be charged; the state department of health will finance the course.

Missouri

The Tuberculosis and Health Society of St. Louis, the Mound City Medical Forum and the St. Louis Health Department sponsored a conference for Negro physicians at the Homer G. Phillips Hospital, St. Louis, in April 1939. During the three days of instruction there was general discussion of tuberculosis, syphilis, and child and maternal hygiene.

Montana

The Montana State University, Missoula, and the Montana State Board of Health in the spring of 1939 held a short study course in pneumonia diagnosis. Instruction was available to physicians and laboratory technicians of the state.

New York

Dr. Terry M. Townsend, president of the Medical Society of the State of New York, has emphasized the need of practicing physicians keeping abreast of recent advances in medicine. He has stressed the role of the county medical society in keeping its members informed. Realizing this need, the Onondaga County Medical Society has given a series of courses featuring individual instruction. The outpatient facilities of the Syracuse Free Dispensary were utilized. From three to six sessions were held in each course in medicine, surgery and gynecology. Instructors were chosen from the membership of the county society. Seven courses were offered in the fall of 1938, and from three to five practicing physicians enrolled in each. A registration fee of $5 was charged to compensate instructors. The program is a permanent activity of the committee on medical education, with the executive secretary of the county society responsible for circularizing the members to determine their needs.

In April 1939 the New York University College of Medicine gave a series of one hour lectures on syphilis five afternoons a week for eight weeks. These lectures were sponsored in part by the United States Public Health Service. No tuition was charged; a federal grant was obtained to finance the instruction.

North Carolina

Beginning in January 1939 a graduate course in medicine was held at Duke University School of Medicine. Eight out of state lecturers constituted the faculty. Lectures were scheduled for one day each week for six consecutive weeks.

A graduate clinic on the diagnosis and treatment of syphilis was held during two days of March 1939 in Durham under the joint auspices of Duke University School of Medicine and the North Carolina State Board of Health. Seven out of state and five North Carolina physicians participated.

Ohio

The Committee on Education of the Ohio State Medical Association reported the institution of postgraduate lectures in five regions of the state in the past year. Approximately 3,265 members of the association in seventy-seven counties were provided with postgraduate opportunities. The entire cost of this educational activity was met by the state medical association.

A course of eight lectures on various aspects of syphilis was given over a period of eight weeks during February and March 1939 under the auspices of Western Reserve University and the United States Public Health Service. Lectures were held in the auditorium of the library. More than 300 enrolled for this instruction. Members of the university faculty and health officers participated.

During March 1939 the School of Medicine of Western Reserve University and the staff of the City Hospital of Cleveland offered practicing physicians a lecture course on recent advances in medicine, surgery and special subjects. The auditorium of the city hospital was used three days a week. Periods were allowed for discussions following the lectures in obstetrics, gynecology, tuberculosis and other diseases of the chest, diseases of children, diseases of the skin, diseases of the blood, and metabolism.

Oregon

A series of postgraduate lectures in obstetrics and pediatrics was sponsored in May 1939 by the Oregon State Medical Society and the Oregon State Board of Health. Nine sections of the state were included and in each locality the county medical society and the county health department cooperated. Two out of state physicians were engaged. Seven topics in obstetrics and five in pediatrics were available to each group. Meetings usually began at noon and continued until 10 p. m. It is anticipated that this postgraduate activity for practicing physicians will be extended to other subjects of medicine.

Pennsylvania

One week residency courses in obstetrics and pediatrics, under the sponsorship of the state department of health and the Commission on Maternal Welfare of the Medical Society of the State of Pennsylvania, are available to practicing physicians in the state by arrangement through county medical societies. By June 14, 1939, eighty-eight physicians had enrolled. Physicians from outlying sections of Pennsylvania were given the privilege of residing at the Lying-In Hospital, Philadelphia, and at the Elizabeth Steel Magee Hospital, Pittsburgh, where the instruction was provided.

South Dakota

The South Dakota State Medical Association, the University of South Dakota School of Medicine and the state board of health in October and November 1938 provided postgraduate courses for practicing physicians. Obstetrics, pediatrics and syphilis were discussed in the full day meetings which were held

in four sections of the state. Two out of state physicians and two members of the South Dakota State Board of Health gave the instruction. No registration fees were charged.

Tennessee

The Committee on Postgraduate Instruction for the Tennessee State Medical Association sponsored a course in pediatrics, which was organized in the same manner as the one in obstetrics recently completed. Instruction in the first circuit began in February 1939 and included five towns. It is anticipated that the state will be covered in two years. An out of state pediatrician has been engaged and with the assistance of the field organizer will follow the plan previously outlined in obstetrics.

Utah

The second Rocky Mountain Medical Conference will be held in Salt Lake City on Sept. 5, 6 and 7, 1939. This graduate assembly is sponsored by the state medical societies of Colorado, Utah, Wyoming and New Mexico. The facilities of the University of Utah will be at the disposal of the conference. Guest speakers from outside the four cooperating states will conduct the program.

Washington

The recently appointed Committee on Postgraduate Medical Instruction of the Washington State Medical Association has outlined the following plan, which has been approved by the board of trustees of the state association: The committee will direct and supervise postgraduate activities for the practicing physicians of Washington. It will coordinate the activities of the present state association committees as far as graduate medical instruction is concerned. Postgraduate programs will be furnished county medical societies on request. The committee will give an annual postgraduate course of from three to five days' duration designed primarily for the practicing physician. Medicine, surgery and special subjects will be included. Registration fees will be charged to defray the cost of instruction.

Wisconsin

The Council on Scientific Work of the Wisconsin State Medical Society and the Wisconsin State Board of Health presented three one day graduate courses in three centers of the state during April 1939. Five out of state and three Wisconsin physicians participated, with the chairman of the council on scientific work as general chairman and correlator at each meeting. Postgraduate sessions began at 10 a. m. and continued until 9:30 p. m. each day. Lectures and clinics in medicine, pediatrics, dermatology, gynecology and surgery were available to all licensed physicians. A registration fee of $5 aided in financing this program. Five hundred and twenty physicians enrolled.

During September 1939 the University of Wisconsin School of Medicine will offer a three day symposium on the blood and blood forming organs. Fifteen out of state physicians will conduct the discussions, which will include round table conferences. The Wisconsin Alumni Research Foundation provided financial support for this program.

Wyoming

The councilors of the Wyoming State Medical Society joined with the state board of health in sponsoring postgraduate instruction for practicing physicians in pediatrics and other subjects. Out of state clinicians were engaged during May and June 1939 to meet with local medical societies and also to provide consultation on request. Ten sections of the state were included in the postgraduate itinerary. In three sections a lecture in orthopedics was given and in one locality obstetrics, gynecology and other medical subjects were included. The instruction was financed by the state health department; no registration fees were charged.

Comment on Recent Progress

There are twenty-two states and the District of Columbia in which the state medical society has organized a committee to correlate and provide for continuity of all or most of the continuation studies of practicing physicians in each state. Included in this group are Alabama, California, Connecticut, Florida, Idaho, Iowa, Massachusetts, Michigan, Mississippi, Nebraska, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Virginia, West Virginia and Wisconsin.

Nine state medical societies have, within the past year, proposed the formation of such a committee and have recommended appropriate functions for the committee. The states affected include Arizona, Georgia, Illinois, Indiana, Kentucky, Maine, Missouri, Texas and West Virginia. In seventeen other states correlation of continuation studies has not as yet been completely effected.

ESSENTIALS OF AN ACCEPTABLE MEDICAL SCHOOL

(Revised to June 1938)

I. Organization

A medical school should be incorporated as a nonprofit institution. Its board of trustees should be composed of public spirited men or women having no financial interest in the operations of the school or its associated hospitals. The trustees should serve for fairly long and overlapping terms. If the choice of trustees is vested in any other body than the board itself, that fact should be clearly stated. Officers and faculty of the school should be appointed by the board.

II. Administration

There should be careful and intelligent supervision of the entire school by the dean or other executive officer who, by training and experience, is fitted to interpret the prevailing standards in medical education, and who is clothed with sufficient authority to carry them into effect.

There should be a good system of records showing conveniently and in detail the credentials, attendance, grades and accounts of the students, by means of which an exact knowledge can be obtained regarding each student's work. Records should also be kept showing readily the attendance of students at the teaching hospitals and dispensaries and the maternity and postmortem cases attended.

The school should require that students be in actual attendance within the first week of each annual session and thereafter. Except for good cause, such as for illness, no credit should be given for any course when the attendance has been less than 80 per cent of the full time.

The school should issue, at least annually, a bulletin setting forth the character of the work which it offers. Such announcement should contain a list of the members of the faculty with their respective qualifications. The courses available should be set forth by departments (anatomy, physiology and so on) showing for each course its number, subject content, character (lecture, recitation, laboratory or clinic), length of time, when, where and by whom given, and the amount of credit allowed. Information should be given regarding entrance requirements and tuition fees. The names of the students enrolled during the current or previous sessions should also be included.

The number of students to whom an adequate medical education can be given by a college is related approximately to the laboratory and hospital facilities available and to the size and qualifications of the teaching staff. A close personal contact between students and members of the teaching staff results in an efficiency which is not possible in an institution where the number of students is excessive.

Advanced standing may be granted to students for work done in other acceptable medical schools, and in granting advanced standing there should be no discrimination against the school's full course students. Official verification of the

student's previous medical work should be obtained by direct correspondence with the school from which he comes, and his preliminary qualifications should also be verified and recorded the same as for freshmen students.

The admission of students to the medical school must be in the hands of a responsible committee or examiner, whose records shall always be open for inspection. Documentary evidence of the student's preliminary education should be obtained and kept on file. When the medical school is an integral part of the university, this work usually devolves on the university examiner. Unless the university examiner and his records are closely accessible, however, some officer at the medical school should obtain and keep on file each student's academic records.

III. Faculty

The school should have a competent teaching staff, graded and organized by departments. Appointments should be based on thorough training, successful teaching experience, ability in research, and willingness to pursue an academic career. In the clinical departments this does not exclude men who are in the active practice of medicine and surgery. Nominations for faculty positions should originate in the faculty, usually being made by the dean in consultation with the department heads or a committee of the faculty. Reasonable security of tenure must be assured in order that the personnel of the faculty may have adequate stability. In the preclinical sciences the faculty should include at least ten qualified persons of professorial rank,[1] devoting their entire time to teaching and to that research without which they cannot well keep up with the rapid progress of medical science. For each twenty-five students in a class there should be at least one full-time assistant in each of the preclinical departments. Salaries should be sufficient to enable members of the faculty to support themselves and their families without the necessity of devoting time and energy to other occupations.

IV. Plant

The school should own, or enjoy the assured use of, modern fireproof buildings sufficient in size to provide lecture rooms, class laboratories, small laboratories for the members of the teaching staff and advanced students, administrative offices and a medical library. Equipment should be adequate, both for student use and for research. A trained librarian should be employed to supervise the operation and development of the library, which should include the more modern text and reference books with the *Quarterly Cumulative Index Medicus*, the *Index Catalogue of the Library of the Surgeon-General's Office* and serviceable card indexes. The library should receive regularly the leading medical periodicals, the current numbers of which should be readily accessible. These periodicals should be bound without delay.

There should be provision for the collection, preservation and indexing of anatomic, embryologic, pathologic and other specimens. With each pathologic specimen coming from postmortems there should also be kept the record of the postmortem, the clinical history of the patient on whom the necropsy was held, and microscopic slides showing the minute structure of the disease shown in the gross specimen. The museum furnishes an excellent means of correlating the work of the department of pathology with that of the clinical departments.

There should be sufficient dissecting material to enable each student to dissect at least the lateral half of the human cadaver, to provide cross sections and other material for study and demonstration.

For experimental laboratory work, as well as for medical research, a supply of animals is essential. Proper provision is necessary also for the housing and care of such animals. In any use made of animals every precaution should be taken to prevent suffering, and work by students should be carefully supervised.

Each school should have such useful auxiliary apparatus as stereopticons, reflectoscopes, microprojectors, carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, x-ray apparatus, and other aids to effective teaching.

1. Professorial rank as here used includes professors, associate professors and assistant professors.

V. Clinical Facilities

The school may own or control a general hospital. By control is meant the unquestioned right to appoint the attending staff. In this event the students come into close and extended contact with patients under adequate supervision. In the event that a medical school depends for clinical teaching on an independent hospital, it is essential that the clinical teachers, either on nomination by the school or by agreement in conference between school and hospital, be appointed by the hospital trustees to appropriate positions on the hospital staff. Such hospitals should be in close proximity to the school and have a daily average of not less than 200 patients who can be utilized for clinical teaching, these patients to be of such character as to permit the students to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties. In the use of this material, bedside and ward clinics should be developed for sections of from five to ten students, and patients in medicine, surgery and the specialties should be assigned to each student under a well supervised clinical clerk system. The treatment and care of these patients should be particularly observed and recorded by the student under the strict supervision of the intern, the resident or the attending staff of the hospital. The use of existing municipal or state hospitals for teaching purposes is also advised.

The school should also own or control ample hospital facilities for children's, contagious, and nervous and mental diseases.

The school should own or control a well ordered dispensary or outpatient department with a daily average attendance of at least 100 patients (visits). Good histories and records of the patients should be kept and the material used in medical instruction. The attending staff should be drawn largely from the faculty, including those of highest rank.

At least fifteen maternity cases should be provided for each senior student, who should have actual charge of these cases under the supervision of the clinical instructor. A carefully prepared report of each case should be handed in by the student.

Facilities should be provided for at least fifty necropsies during each school session which are attended and participated in by students. These should be performed by the professor of pathology or a member of his staff. The material thus secured should be used in connection with clinical pathologic conferences.

VI. Resources

Experience has shown that modern medicine cannot be acceptably taught by a school which depends solely on the income from students' fees. No medical school, therefore, should expect to secure approval which does not have a substantial income in addition to students' fees. This statement carries double weight if the school finds it necessary to maintain its own teaching hospital.

VII. Requirements for Admission

1. The minimum requirement for admission to approved medical schools is two years of college training which include English, theoretical and practical courses in physics, biology and general and organic chemistry. Three years or more in college is, however, recommended.

2. Since it cannot in general be assumed that all who have satisfied these requirements merely in terms of hourly credits are fitted for the study of medicine, it is desirable that qualitative standards for admission should be imposed.

3. As a rule candidates should have received their preliminary education in institutions approved by accrediting agencies acceptable to the Council. Exception to this rule may be made in the case of applicants who have demonstrated superior ability. For the convenience of admitting officers the Council has prepared a list of colleges of arts and sciences approved by national and regional educational associations.

4. Admission to approved medical schools may also be by examination under the following conditions:

(*a*) Candidates who have completed two years of collegiate instruction and present evidence of general scholarship of high order, but who lack credits in not more than two of the required subjects, may be admitted on passing examinations in these subjects.

(*b*) Candidates who have completed three years of collegiate instruction and present evidence of having accomplished work of distinction in one or more fields of learning, but who lack credit in any or all of the required subjects, may be admitted on passing examinations in these subjects.

VIII. Curriculum

The entire course of four academic years should consist of from 3,600 to 4,400 hours, distributed as from 900 to 1,100 hours a year, and shall be grouped as set forth in the following schedule, each group to be allotted approximately the percentage of hours of the whole number of hours in the courses as stated:

	Per Cent		
1. Anatomy, including embryology and histology	14	—	18.5
2. Physiology	4.5	—	6
3. Biochemistry	3.5	—	4.5
4. Pathology, bacteriology and immunology	10	—	13
5. Pharmacology	4	—	5
6. Hygiene and sanitation	3	—	4
7. General medicine (Neurology and psychiatry, Pediatrics, Dermatology and syphilology)	20	—	26.5
8. General surgery (Orthopedic surgery, Urology, Ophthalmology, Otolaryngology, Roentgenology)	13	—	17.5
9. Obstetrics and gynecology	4	—	5
Totals	76	—	100
Electives	24	—	0

When the teaching conditions demand it, a subject may be transferred from one division to another.

Several of the medical schools now require an internship for graduation. Where it is not obligatory it is strongly urged and graduates should be assisted in securing internships in hospitals approved by the Council on Medical Education and Hospitals of the American Medical Association.

ESSENTIALS IN A HOSPITAL APPROVED FOR TRAINING INTERNS

Revised January 1939

I. Hospitals Eligible for Approval

General hospitals are eligible which admit at least 2,000 patients per year and/or have a daily average census of 75 patients, and which provide a variety of medical, surgical, obstetrical and pediatric patients either in the hospital proper or through suitable affiliations with other institutions. Newborn infants are included in computing the daily average census, but are not counted as admissions.

II. The Hospital Staff

1. CHARACTER OF STAFF.—There must be an organized staff of ethical physicians who hold the degree of doctor of medicine from acceptable medical schools; who are of unquestioned professional and moral integrity; who are proficient in general practice or in the special fields to which they devote themselves; who give personal attention to the patients under their charge and who will provide adequate facilities, instruction and that sympathetic cooperation without which interns and graduate students cannot obtain the practical training for which they are serving the hospital.

2. GRADUATES IN MEDICINE.—The hospital must not only confine membership on its staff to reputable practitioners who have received the degree of doctor of medicine from medical schools considered acceptable by the Council on Medical Education and Hospitals of the American Medical Association, but also must apply this ruling to every person permitted to treat or prescribe for the sick in the hospital or in any of its departments. The ruling does not apply to the treatment of patients by nurses, masseurs, and other like assistants, when acting under the orders of any physician on the attending staff.

3. STAFF CONFERENCES.—The hospital staff shall conduct a regular monthly staff conference at which the work of the various hospital departments is considered and where interesting hospital cases and selected autopsy reports may be presented for general discussion. The interns should be expected to attend these meetings and take an active part.

III. Laboratory

1. EQUIPMENT.—There must be a clinical laboratory in the hospital equipped for the ordinary routine tests, and for the more technical bacteriologic, serologic, chemical, basal metabolic, and tissue examinations. A competent physician-pathologist must be in charge of the laboratory, who shall supervise the work in general and personally examine all tissues from the operating rooms and furnish reports of gross or microscopic findings as indicated. Records must be kept in the laboratory of all work carried out by the department, and copies should be filed with the patient's clinical record.

2. AUTOPSIES.—Inasmuch as the per cent of autopsies has come to be recognized as an index of the educational activities in a hospital, no institution will be approved for the training of interns which does not have a record of autopsies of at least 15 per cent. (After Jan. 1, 1940, a minimum of thirty-six necropsies will likewise be required.) The autopsies preferably should be performed in the hospital by or under the supervision of the hospital pathologist who has special knowledge of this type of work and who can furnish reports that include a summary of the clinical record and a detailed description of gross and microscopic findings.

3. AUTOPSY ROOM.—The hospital should provide an autopsy room where postmortem examinations can be held in the presence of staff members and interns.

IV. Department of Radiology

This department must be equipped for at least roentgenographic and roentgenoscopic procedures and must be directed by a physician-roentgenologist who is properly qualified for the work which the department purports to do. Records of the work carried out must be on file in the department, and copies should be filed with the clinical charts.

V. Medical Library

There must be a working medical library, in charge of a librarian, which should contain a useful selection of late editions of standard text and reference books and current files of not less than ten of the better medical journals. The library should be inside the hospital building and be located where it is readily accessible to the interns and staff members. Collections of choice reference books in pathology and clinical diagnosis and in roentgen-ray work should be found respectively in the pathologic and roentgenologic departments.

VI. Histories

1. COMPLETE HISTORIES.—There must be complete histories, giving the patient's complaint, physical examination at time of admission to the hospital, preliminary diagnosis, laboratory findings, description of operation, if any, progress notes, final diagnosis, condition on discharge and, in case of death, autopsy findings if secured.

2. ENDORSEMENT OF HISTORIES.—The histories should show by signatures or initials all persons writing them or parts thereof, as well as the staff members by whom the histories are verified. Likewise, all orders and progress notes should be initialed or signed.

3. RECORDS.—A competent clerk should have charge of the records pertaining to patients. To be of educational value the records must be so handled as to be readily accessible when desired for special study or reference work. There should be

an alphabetical index of patients with cross files according to diagnoses, operations, etc. Lists should also be kept of patients according to departments, i. e., medical, surgical, obstetrical, pediatric, genito-urinary, gynecological, eye, ear, nose and throat, tuberculosis, etc. Hospital days, average daily census, deaths and autopsies should likewise be classified by departments. Histories should be filed so as to be easily accessible. Complete monthly reports and annual summaries should be prepared covering the various hospital departments.

VII. Interns

1. PURPOSE OF INTERNSHIP.—It is emphasized that the object of the general internship is to round out the medical graduate's training so as to enable him to enter into the general practice of medicine and not to equip him to enter directly on any specialty. For the latter he should obtain further and different instruction.

2. TYPE OF INTERNSHIPS.—The Council approves rotating, mixed and straight internships. A full rotating internship provides training in medicine, surgery, pediatrics, obstetrics and the laboratories. (X-ray and laboratory duties may be combined with clinical services or constitute separate assignments.) A mixed or limited rotating internship covers more than one of the clinical specialties but does not include all of the divisions listed above. A straight internship is an assignment limited to a single department but may include the subspecialties of the same branch. Straight internships are now approved in the divisions of medicine, surgery, pediatrics and pathology.

3. INTERN SCHEDULE.—The intern service should cover at least twelve months and should be so arranged as to furnish the interns adequate instruction in medicine, pediatrics, obstetrics, surgery and in the laboratory and x-ray departments. The number of interns should be sufficient to permit each one to study his cases thoroughly. The best institutions employ at least one for each 500 admissions. Accordingly, for a hospital service having 2,000 annual admissions at least three interns will be deemed necessary. The interns should be selected from medical colleges approved by the Council on Medical Education and Hospitals.

4. WORK OF THE INTERNS.

(a) *Histories.*—The interns should personally record a history, a physical examination and their own diagnosis on private and ward patients on their service. The attending physician should in each instance check the intern's work, call attention to errors and supplement the clinical records with any additional findings. The interns in following the progress of the patient should enter progress notes on the chart and the patient's condition on discharge. When a hospital has a shortage of interns a provision should be made whereby the interns on duty may not be burdened by an unreasonable amount of history writing. In such instances it is recommended that a definite number of cases be assigned to the intern and that the other charts be completed by the attending physicians.

It is especially emphasized that surgical charts should be completed promptly and except in emergencies before the patient is taken to the operating room. Unless this is done the educational value of the intern's work is considerably lessened.

(b) *Medical Department.*—This department should afford the interns an adequate amount of instruction in general medicine and pediatrics. Preferably there should also be facilities for the study of tuberculous, neuropsychiatric and contagious patients. In connection with the work in this department it is recommended that the interns be instructed in the feeding of both infants and adults as required in various diseases, and that they obtain a reasonable amount of technical experience under a trained dietitian.

(c) *Obstetrical Department.*—The intern should obtain practical experience in this department by personally delivering at least ten patients while on the service. He should assist at all other deliveries and not act as anesthetist for maternity patients while assigned to this department.

(d) *Surgical Department.*—It should be impressed upon the interns that it is more important for them to acquire skill in diagnosis and postoperative treatment than to learn technical operative procedures. However, in order that the interns may follow their cases closely they should be permitted to act as first assistant in the operating room whenever possible. To stimulate further interest on the part of the interns, it is also advisable, when an opportunity presents itself, to permit them to perform surgical procedures under constant supervision. Surgical dressings should be assigned to the intern so that he may observe carefully the postoperative course.

The intern should obtain instruction and experience in the administration of the various kinds of anesthetics under the supervision of experienced anesthetists.

(e) *Laboratory Department.*—The intern should have a definite laboratory course wherein he renews his acquaintance with routine examinations and gains instruction from the pathologist regarding the more technical procedures and tissue diagnoses. Interns in the hospital should be present and assist at autopsy procedures when possible, and should receive instruction in technic and in interpretation of findings. Every effort should be made that other assignments may not interfere with the interns' attendance.

(f) *X-Ray Department.*—The roentgenologist should instruct the interns by lectures and demonstrations in the technical, diagnostic and therapeutic use of x-rays.

(g) *Outpatient Department.*—When facilities are available in the outpatient department a regular service should be instituted for the interns if practicable, or else the work in this department should be carried out in conjunction with the respective services in the hospital.

5. INSTRUCTION OF INTERNS.—All attending physicians should allow sufficient time at rounds to check the interns' work and to instruct them in connection with their patients. Special attention should be given at this time to dangerously ill patients, and the advice of other physicians on the staff should also be sought.

At least a weekly period should be arranged for conducting clinical-pathological conferences, x-ray lectures or other special lectures or clinics for the interns.

The interns should be encouraged to read medical literature in connection with their patients and should preferably be assigned articles in the medical journals for special study and report.

6. RECORDS OF INTERNS' WORK.—State medical examining boards, medical schools and other agencies often desire detailed information regarding the interns' training and, therefore, each hospital should keep a weekly or monthly record of each intern's work. This information is most conveniently supplied to the superintendent or record office by the interns themselves on special forms where space is provided for the following: period covered; service; number of patients admitted on service; number of histories and physical examinations; number of anesthetics given; number of operations assisted at; number performed; number of deliveries attended; number performed; autopsies attended; hours in laboratory; lectures attended; clinics attended, etc.

7. RULES REGARDING INTERNS.—The hospital should have a set of printed or written rules and regulations defining the rights, duties and privileges of the interns, a copy of which should be furnished to each intern.

8. INTERNS' LIVING QUARTERS.—The hospital shall provide reasonably comfortable living quarters for the interns with opportunities for recreation, both indoor and outdoor, appropriate to the locality and environment of the hospital.

9. FAITHFUL SERVICE FROM INTERN EXPECTED.—For all the privileges granted the intern it is understood that the hospital has the right to expect faithful service in return.

The breaking of contracts by interns will be recorded against their standing in the files of the American Medical Association's office unless the interns can show just cause for such action.

VIII. Admission to the Approved List

1. APPLICATION FOR APPROVAL.—Hospitals that want to be accredited for intern training should apply to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago.

2. APPLICATION FOR APPROVAL OF INTERNSHIPS.—Application blanks in duplicate will be supplied on request. These should be filled out carefully by the superintendent or by some staff member who is acquainted with the intern service in the hospital, and one copy returned to the office of the Council.

ESSENTIALS OF APPROVED RESIDENCIES AND FELLOWSHIPS

Residencies and fellowships in the clinical branches of medicine and surgery, pathology and radiology represent advanced training usually in preparation for the practice of a specialty. Residencies in specialties, as defined by the Council, are straight services of one or more years following an approved internship. A fellowship is a form of apprenticeship which in some cases is indistinguishable from a residency, although it usually offers greater opportunity for the study of basic sciences and research. Ordinarily a fellowship is a university rather than a hospital appointment. Mixed residencies are general hospital assignments following internship. (They include services classified as general residencies and chief residencies.)

Approved residencies and fellowships are offered in the following branches of medicine:

1. Anesthesiology
2. Cardiology
3. Communicable Diseases
4. Dermatology and Syphilology
5. Epilepsy
6. Fractures
7. Gynecology
8. Malignant Diseases
9. Medicine
10. Mental Deficiencies
11. Mixed Residency
12. Neurology
13. Neurosurgery
14. Obstetrics
15. Obstetrics-Gynecology
16. Ophthalmology
17. Ophthalmology-Otolaryngology
18. Orthopedic Surgery
19. Otolaryngology
20. Pathology
21. Pediatrics
22. Physical Therapy
23. Plastic Surgery
24. Psychiatry
25. Radiology
26. Surgery
27. Thoracic Surgery
28. Traumatic Surgery
29. Tuberculosis
30. Urology

I. General Requirements

Registration.—Previous admission to the Register of the American Medical Association is essential in the case of hospitals offering fellowships and residencies in specialties.

This implies that each hospital must be adequately organized, staffed and equipped and that it be conducted primarily for the welfare of the sick. The educational function described in these Essentials is supplementary to the main purpose of the hospital service but is closely related thereto in that it serves to improve the quality of medical practice.

Size.—The size of the institution is not a primary consideration. The clinical material, however, should be sufficient to enable residents and fellows to observe the principal manifestations of the disease, or diseases, they are studying.

Plant and Equipment.—The physical plant should be such as to assure the safety and comfort of the patients. There should be such equipment, appliances and apparatus as are commonly employed in the specialty in which training is offered and in the use of which the resident should become proficient.

II. Staff

There must be an organized staff of ethical, licensed physicians holding the degree of doctor of medicine from acceptable medical schools. The particular specialties in which residents are being trained must be represented on the staff by well qualified, experienced and proficient physicians.

In general hospitals, the staff shall further provide a definite departmental organization in those branches of medicine in which residencies are offered. The director of each service should be a competent specialist who is at least eligible for certification by the corresponding specialty board. He should assume direct responsibility for the training of residents and fellows and should stimulate others of his staff to give instruction and sympathetic cooperation which graduate students require.

It is essential that there shall be at least monthly clinical-pathologic conferences or other regular staff meetings at which histories and clinical observations in selected cases may be reviewed, particularly when the death of patients has necessitated special study including necropsy performance. In addition to meetings of the staff as a whole, it is expected that departmental conferences shall be conducted in which residents may take an active part to the end that the character of the service given by that department to its patients may be recurringly evaluated. Other educational activities requiring the full support of the staff are described under Training Program, section IX.

III. Department of Radiology

The department of radiology shall be under the direction of a qualified radiologist proficient in the various functions of his specialty. He must likewise cooperate in all matters pertaining to residencies and fellowships which fall within the scope of his service. The department should contain roentgenographic, roentgenoscopic and, where required, therapeutic equipment and radium. All these facilities are essential in institutions offering a complete residency or fellowship program in radiology.

After Jan. 1, 1942, an applicant for certification by the American Board must have completed a period of study after the internship of at least three years in a recognized institution or radiologic department. This period of specialized training should include an active experience in radiology of not less than twenty-four months and graduate instruction in pathologic anatomy, radiophysics and radiobiology. Board certificates are offered in (1) the entire field of radiology, (2) roentgenology, (3) diagnostic roentgenology and (4) therapeutic radiology.

Residencies and fellowships of from one to three years' duration should be organized in such a manner that on completion of the graduate program the aggregate of training will coincide with the foregoing requirements. Courses of shorter duration, however, may provide the basic instruction in radiology required by other specialties. A complete residency or fellowship program supplies training in all divisions of the specialty—diagnostic roentgenology, therapeutic roentgenology and radium therapy. Without attempting to define a detailed plan of instruction it can be suggested that the first year be devoted principally to pathology, roentgenologic technic and a general orientation in the radiologic field. In the second and third years the clinical applications of radiology should be emphasized with at least six months assigned exclusively to radiotherapy. In view of the importance of pathology as a basis for radiologic diagnosis and therapy it is recommended that a minimum of six months be devoted to pathologic anatomy, particularly the study of gross pathology and tumors. Instruction in radiophysics and radiobiology may well run concurrently with the training in radium therapy and therapeutic roentgenology.

Residencies in a restricted field of radiology can likewise be modeled on this plan. The training should be systematic and progressive in character with gradual assignment of responsibility in both diagnosis and therapy. It should also include an active participation in radiologic conferences, staff meetings, and joint conferences with other departments. An adequate amount of clinical material must be available in the divisions of radiology in which residency or fellowship training is offered.

IV. Department of Pathology

The department of pathology must be under the supervision of a qualified pathologist who shall be prepared to cooperate fully in the training of graduate students and supervise any direct contact which they have with the laboratory. The department should provide apparatus, reagents and materials necessary to the operation of a modern clinical and pathologic laboratory. Adequate necropsy facilities should also be available.

Residencies and fellowships, in contrast to the shorter courses for basic instruction in pathology, are ordinarily of from one to three years' duration. Thus they may serve to fulfil the requirements for certification, which specify in addition to the internship a period of study of at least three calendar years, including one year in the various phases of clinical pathology and not less than two years of training and experience in a department of pathologic anatomy. (The training may be combined or in sequence.)

The teaching material must be sufficient in kind and amount to afford graduate students adequate training in all divisions of the service and in both gross and microscopic pathology. Systematic instruction should be carried out with the use of fresh material and collections of slides and museum specimens for comparative studies in histology and pathology. As the training continues an increasing amount of responsibility should be assigned to the residents and fellows in tissue diagnosis, in actual performance of postmortem examinations and in the preparation of pathologic reports and necropsy protocols.

Further instruction should be obtained through active participation in clinical-pathologic conferences, staff meetings and joint conferences with other departments.

V. Necropsies

Thoroughness in postmortem performance should be emphasized. All institutions and individual clinical services desiring approval for the training of residents or fellows must examine post mortem 15 per cent or more of their fatal cases. An additional requirement of at least 100 necropsies a year applies to institutions offering residencies or fellowships in pathology. Complete necropsy records should be kept on file and each should contain a summary of the clinical record and a detailed description of both the gross and the microscopic observations. Graduate students of all departments should attend postmortem examinations as often as possible. They may, with value, participate in the performance of necropsies from their own service and in the preparation of the protocols.

VI. Medical Library

Institutions offering graduate training should maintain or provide ready access to an adequate medical library containing modern texts, the QUARTERLY CUMULATIVE INDEX MEDICUS and current journals relating to the fields in which residencies and fellowships are offered.

VII. Histories and Records

There must be complete histories giving the patient's complaint, physical examination at time of admission, preliminary diagnosis, laboratory observations, descriptions of operations if any, regular progress notes, final diagnosis, condition on discharge, end results and, in case of death, necropsy observations if postmortem examination is performed.

The histories should show by signatures, or initials, all persons writing them or parts of them as well as the staff members by whom the histories are verified. Likewise, all orders and progress notes should be initialed or signed.

The records should be in charge of some competent person, preferably a trained record librarian. Alphabetical and diagnostic indexes of the patients should be maintained and the records filed so as to be readily accessible from either source. Operative procedures and radiologic and pathologic material should likewise be classified in a suitable manner.

VIII. Eligibility of Applicants

Candidates for residencies or fellowships should be selected from graduates of approved medical schools, who have served an internship in an approved hospital or have had two or more years in practice. It is recommended, however, that candidates seeking residencies or fellowships in such specialties as urology, orthopedics, plastic surgery, thoracic surgery and neurosurgery should have completed one year of general surgical training in addition to the internship.

IX. Training Program

Residencies and fellowships are designed primarily to meet the requirements for certification of special practice. Individually they may not fulfil all the essentials of a specialty board, but each service that is properly organized will make a substantial contribution to the graduate program. In all instances the term of service should be at least twelve months and might well be extended to two or more years when suitable facilities are available. An affiliation with a university or medical school is desirable to provide the required training in basic sciences relating to individual specialties.

Aside from the daily contact with patients and staff men, the assumption of responsibility is the most valuable aspect of residency and fellowship training. Consequently, as ability is demonstrated, an increasing amount of reliance should be placed in the judgment of graduate students both in diagnosis and in treatment.

Residents and fellows should be given an opportunity to contribute to the effectiveness of the hospital service by some investigative work. This may take the form of research in the hospital laboratories or wards, summaries of medical literature, or the preparation of statistical analyses derived from the hospital record department. The members of the resident staff should likewise be encouraged to engage in teaching activities, particularly in relation to the training of medical students, interns and nurses.

The effectiveness of a residency or fellowship program depends largely on the quality of medical supervision and teaching. It is important, therefore, that methods of instruction be employed which are best suited to the special field. Emphasis should be placed on bedside instruction, teaching rounds, departmental meetings or seminars, clinical-pathologic conferences, demonstrations and lectures. The review of medical literature is an essential feature of residency training. Likewise the study of basic sciences as required by specialty boards should be integrated with the clinical experience. In the operative divisions it is desirable that facilities be available for anatomic dissection and experimental surgery on animals or on the cadaver. Additional requirements apply to graduate courses leading to advanced degrees.

The following regulations pertaining to individual specialties contain a brief abstract of the special training required for certification by the Specialty Boards. The full requirements for certification should be ascertained by direct correspondence with the secretary of each board as listed in section XI.

1. Anesthesiology.—Present requirements for certification by the American Board include an internship of one year and at least four calendar years of active experience limited to anesthesiology. This period of specialized training and practice should include a minimum of two years of supervised clinical instruction in anesthesiology and graduate study in the related basic sciences, particularly anatomy, physiology, pharmacology and biochemistry. After Jan. 1, 1942, the requirements will be interpreted as three years of special training and three years of additional practice in anesthesiology.

The director of the department should be a qualified physician limiting his practice to anesthesiology. It is preferable that he serve on a full time basis to supervise the technical and educational activities of the department. His staff must include an adequate number of trained anesthetists in accordance with the needs of the service.

Equipment must be satisfactory for the teaching of modern methods of anesthesia and should include suitable apparatus for gas administration, resuscitation and inhalation therapy. Likewise, the clinical material must be sufficient to afford graduate students adequate experience in the various methods and types of anesthesia now commonly employed. It is expected that each graduate student should administer a minimum of 500 anesthetics a year, of which 400 should be general surgical in type. Residencies and fellowships organized in accordance with the foregoing requirements should provide systematic clinical and technical instruction supplemented by seminars, lectures and demonstrations on anatomic and other material.

2. Cardiology.—(See Medicine.)

3. Communicable Diseases.—(See Medicine.)

4. Dermatology and Syphilology.—In order to qualify for certification in dermatology and syphilology, graduate students who begin their training after Jan. 1, 1940, must complete three years of systematic instruction and two additional years of study or practice. The period of specialized training following internship shall include (*a*) not less than eighteen months of active experience in clinical dermatology and syphilology and (*b*) graduate study in the basic sciences of embryology, histology, chemistry, physiology, bacteriology, mycology, parasitology, pathology, immunology, serology, pharmacology and physics as related to physical therapy.

Residencies and fellowships designed to meet these requirements should provide an organized course of instruction involving lectures, seminars, clinical demonstrations and laboratory assignments, especially in histopathology, parasitology, mycology and immunology. To facilitate clinical and laboratory teaching it is essential that the department have ready access to an adequate supply of classified anatomic and pathologic material including histologic and lantern slides for demonstrations. Projection apparatus should be available and also facilities for clinical photography.

Since the practice of dermatology and syphilology is concerned largely with ambulatory patients, it is essential that an active outpatient service be available to furnish sufficient clinical

material in the various subdivisions of the specialty. It is also desirable that hospital facilities be available and that graduate students be given an opportunity to observe the dermatologic manifestations of the acute contagious diseases. Ordinarily a minimum of 3,500 annual visits is considered essential in the dermatologic division and a similar number in syphilology.

5. Epilepsy.—(See Psychiatry and Neurology.)

6. Fractures.—(See Surgery; also Orthopedics.)

7. Gynecology.—(See Obstetrics and Gynecology.)

8. Malignant Diseases.—The division of malignant diseases is largely a combination of services involving practically all the branches of medicine and surgery, including pathology and radiology. It is important, therefore, that competent staff physicians be assigned to all departments and that special facilities be available for histopathology, diagnostic roentgenology, operative surgery, therapeutic roentgenology and radium therapy.

The clinical material should be sufficient in kind and amount to enable graduate students to observe and study the various types of malignant diseases and the methods of therapy commonly employed. A teaching service should have approximately 350 inpatients a year and additional material in the outpatient tumor clinic.

Ordinarily, the training is general in type with assignments in clinical diagnosis, pathology, diagnostic roentgenology, surgery, therapeutic roentgenology and radium therapy. Courses in surgical and postmortem pathology, radiophysics and radiobiology are often included. In some instances the service is limited in scope and is utilized primarily as supplementary training in internal medicine, surgery, pathology, radiology or other specialties.

9. Medicine.—Requirements for certification in this specialty include an approved internship of at least twelve months, three years of special training and two additional years of practice in the field of internal medicine or its more restricted and specialized branches. The graduate training should include several months of properly supervised instruction in anatomy, physiology, biochemistry, pathology, bacteriology or pharmacology as related to medical specialties.

Residencies and fellowships should necessarily be organized on a broad basis to furnish instruction in the various specialties which combine to form the foundation of practice in internal medicine. Accordingly, the service should not be limited entirely to general medicine and its subdivisions of allergy, cardiology, gastro-enterology, metabolic diseases, contagion and tuberculosis but might well include a reasonable amount of instruction in the divisions of psychiatry and neurology, dermatology and syphilology, and pediatrics, now organized as independent specialties.

It should be taken into account, however, that not more than one year of instruction in the related medical specialties and basic sciences can be applied to the three year period of special training.

In institutions offering residencies and fellowships in general medicine, cardiology, communicable diseases or tuberculosis, emphasis should be placed on the educational features of the service and residents should receive regular instruction from members of the staff in methods of clinical study and diagnostic and therapeutic procedures. Of particular importance is the study of etiology, pathogenesis, symptomatology and course of the various diseases so that the residents may develop skill and accuracy in diagnosis as well as a mature judgment and resourcefulness in therapy.

Under the supervision of qualified members of the staff the residents should assume individual responsibility in actual case management. They should also be required to correlate clinical studies with postmortem pathology, review medical literature and take an active part in weekly teaching rounds, departmental seminars and clinical-pathologic conferences. Instruction in the basic sciences may well be integrated with the clinical experience.

Training in tuberculosis should be of such a character that residents may become thoroughly familiar with the various phases of institutional service as well as the community aspects of tuberculosis control. This necessitates a well organized program of instruction with rotating assignments in the admitting department, infirmaries, convalescent and ambulatory wards and the outpatient clinics. Careful instruction should be provided in diagnosis, interpretation of roentgenograms, therapeutic procedures and general sanatorium care. It is particularly important that the residents become fully acquainted with the use of pneumothorax therapy and the technic of the initial induction as well as the subsequent refills. If a surgical department is maintained, the operative service may be combined with the general training in tuberculosis or it may form the basis of a separate residency in thoracic surgery.

It must be emphasized that residencies in tuberculosis are educational in character and that of the full time sanatorium staff only those physicians who serve primarily on an educational basis come within the residency classification of the Council.

The clinical material must be adequate in kind and amount. In general medicine a minimum of 400 annual admissions is considered desirable, while in tuberculosis approximately 125 inpatients a year may be sufficient.

Residencies in cardiology and communicable diseases may well follow the general plan indicated. In cardiology a large part of the required teaching material is frequently supplied on a consultation basis and therefore the number of patients admitted directly to the department may not be an accurate index of the scope of the service. A well balanced service is essential for residency training in contagious diseases. Between 300 and 400 admissions a year may be considered sufficient, especially if most of the acute contagious diseases are well represented.

10. Mental Deficiencies.—(See Psychiatry and Neurology.)

11. Mixed Residency (see definition in opening paragraph).

All hospitals approved for intern training are automatically accredited for mixed residencies which represent general assignments of at least one year duration following an approved internship. Other hospitals presenting a general service and an admission rate of at least 1,500 patients a year may likewise be certified if they conform to the general requirements for residency training.

12. Neurology.—(See Psychiatry and Neurology.)

13. Neurosurgery.—(See Surgery; also Psychiatry and Neurology.)

14. Obstetrics.—(See Obstetrics and Gynecology.)

15. Obstetrics and Gynecology.—Candidates for certification in obstetrics and/or gynecology must in addition to other requirements have completed a year of internship and five years of practice including at least three years of special training in obstetrics and/or gynecology. After Jan. 1, 1942, the requirements for all candidates will consist of one year of approved internship followed by a minimum of seven years of practice including not less than three years of special training in obstetrics and/or gynecology.

Institutions offering residencies or fellowships in obstetrics and/or gynecology must provide surgical and obstetric facilities adequate for the clinical and teaching needs of the service. They should also furnish sufficient teaching material to afford graduate students a wide experience in clinical diagnosis, treatment, and technical and operative procedures. Ordinarily an admission rate of 400 patients a year is considered necessary for graduate training in obstetrics and a similar requirement applies to gynecology. In a combined service each division should furnish a corresponding amount of clinical material. Antepartum and follow-up clinics are also essential.

The graduate program should include the study of fundamental subjects, particularly obstetric and gynecologic pathology, anatomy, embryology and physiology. Primarily, however, the emphasis should be placed on clinical training in order that graduate students may receive ample instruction in the various phases of gynecologic and obstetric service—antepartum care, treatment of toxemias of pregnancy, management of normal and abnormal labor, technic of versions, breech extractions and instrumental delivery; diagnosis and treatment of the complications of labor, postpartum hemorrhage, puerperal infections; operative obstetrics and gynecology. Courses of instruction should include assignments in pathology, demonstrations on the manikin, departmental seminars, clinical-pathologic conferences, and teaching rounds. Training in surgical technic should be sufficient to enable residents and fellows to undertake operative work on their own responsibility especially toward the end of the graduate program.

16. **Ophthalmology.**—To become certified in ophthalmology a candidate must have completed an internship of one year or its equivalent and a period of combined study, training and practice of not less than three years. The special training should include active clinical experience and graduate study of related basic sciences, particularly anatomy, histology, embryology, optics, physiologic optics, visual physiology and psychology, pathology, bacteriology and pharmacology. The candidate should have knowledge of the application of these subjects and their use in clinical ophthalmology especially in refraction, disorders of motility and binocular vision, perimetry, and in the use of the ophthalmoscope, retinoscope and slit lamp.

Residencies and fellowships should be organized in such a manner that on completion of the graduate program the aggregate of training should coincide with the foregoing requirements. There must be adequate equipment for diagnosis, therapy, refraction, operative procedures, and preferably additional facilities for dissection and experimental surgery. Histologic and pathologic material should be available for demonstration and individual study. The clinical facilities must be sufficient in kind and amount to afford graduate students an adequate experience in diagnosis, therapy and operative technic. Ordinarily a minimum of 150 admissions and 1,500 outpatient visits a year is considered necessary for graduate training in this specialty.

A systematic course of instruction should be offered with regular lectures and demonstrations in clinical and operative ophthalmology. Instruction in surgical technic should be sufficient to enable residents and fellows to undertake operative work on their own responsibility, especially toward the end of the graduate program.

17. **Ophthalmology-Otolaryngology.**—A joint service in ophthalmology and otolaryngology should fulfil the requirements listed under each department except that five years of training and experience should constitute the minimum time required.

18. **Orthopedic Surgery.**—After Jan. 1, 1940, candidates for certification must have completed one year of internship, three years of concentrated instruction in orthopedic surgery and two years of subsequent practice in this special field. Knowledge of the basic sciences related to orthopedic surgery is also required.

As preliminary training the Council recommends one year of general surgery in addition to the internship. Surgical and orthopedic facilities must be satisfactory and clinical material sufficient to afford graduate students adequate experience in the correction of congenital and acquired deformities and in the treatment of fractures and other acute and chronic disorders which interfere with the proper function of the skeletal system and its associated structures.

Both hospital and outpatient facilities are desirable, and institutions offering graduate instruction should treat a minimum of 200 patients annually. Students should become thoroughly familiar with all methods of diagnosis and treatment, corrective exercises, physical therapy, operative procedures and the use of orthopedic appliances. Instruction in surgical technic should be sufficient to enable residents and fellows to undertake operative work on their own responsibility, especially toward the end of the graduate program.

Graduate study is recommended in the fundamental sciences of anatomy, embryology, physiology, pathology, bacteriology and biochemistry. Clinical instruction should include teaching rounds and departmental conferences.

19. **Otolaryngology.**—The qualifications for special practice in this field include an approved internship and three years of graduate preparation, with at least one and preferably two years in recognized residencies or basic courses followed by private practice in otolaryngology.

Residencies and fellowships in otolaryngology should aim to provide adequate clinical and operative experience and additional opportunities, if possible, for graduate study in the related basic sciences of anatomy, embryology, histology, physiology, pathology, bacteriology and pharmacology.

Essential equipment for diagnosis and surgery should be available, including an audiometer and other special apparatus depending on the scope of the service. The department should further provide histologic and pathologic material for demonstrations and study and preferably facilities for experimental surgery and dissection of the head and neck. The clinical material should be sufficient in variety and amount to provide adequate training in the various divisions of the service, which might advantageously include the field of bronchoscopy. It is generally assumed that a graduate service would require a minimum of 400 admissions a year and at least 3,500 visits in the outpatient department.

The training should include a systematic course of instruction with lectures and demonstrations on clinical and technical subjects pertaining to the various phases of otolaryngology. Instruction in surgical technic should be sufficient to enable residents and fellows to undertake operative work on their own responsibility, especially toward the end of the graduate program.

20. **Pathology.**—(See Department of Pathology, section IV.)

21. **Pediatrics.**—To qualify for certification in pediatrics a candidate must have completed five years of training and practice after graduation from an approved medical school. The requirements include an approved internship of one year, a service of two years in a pediatric center and two additional years of specialized study or practice. Although the training need not be continuous or in the same institution, it is desirable that the educational program be systematized in the form of residencies or fellowships of from one to three years' duration.

Clinical training should be obtained in general medical pediatrics, nutritional disorders, care of newborn infants, preventive pediatrics and outpatient clinics in the various departments of medical pediatrics. Correlative studies are recommended especially in contagion, well baby clinics, mental deficiencies, neurologic disorders of children and behavior problems. Sufficient time should also be devoted to the fundamental subjects of physiology, embryology, nutrition, growth and development.

In the wards and in the clinics the residents and fellows should be permitted to assume individual responsibility in diagnostic and therapeutic procedures and case management. They should actively participate in teaching rounds, clinical-pathologic conferences, departmental seminars and all other functions designed to improve the quality of the clinical and educational service. To supply an adequate amount and variety of teaching material a department should provide a minimum of approximately 200 annual admissions in general medical pediatrics.

22. **Physical Therapy.**—The department should be under the direction of a physician qualified by training and experience in physical therapy. He should spend sufficient time in the department daily to supervise actually the work of the graduate students and technicians. Adequate space and apparatus should be furnished in the department for all phases of the work. The clinical material should be sufficient in kind and amount to enable the residents and fellows to observe and study all forms of treatment in physical therapy. Both inpatient and outpatient clinical material should be available.

The training should include (*a*) the study of certain fundamental subjects: physics of light, heat, electricity and mechanics; anatomy, with special reference to the peripheral nervous system, muscles, blood vessels, bones and joints, physical chemistry as related to physical therapy; physiology; (*b*) clinical and hospital training in the study and treatment of patients by various physical agents—light therapy, thermotherapy, fever therapy, hydrotherapy, electrotherapy and mechanotherapy. Emphasis should be placed on subjects related to physical therapy such as orthopedics, neurology, roentgenology, dermatology and general medicine.

A minimum of three years of special training is considered necessary for a physician to qualify as a specialist in physical therapy.

23. **Plastic Surgery.**—(See Surgery.)

24. **Psychiatry and Neurology.**—Specialized training and experience of at least five years is essential for certification in neurology or in psychiatry. (To qualify in both fields a minimum of six years is required.) The requisite training consists of three full years of study after the general internship, and two or three additional years of practice or study in psychiatry or neurology or both. During the period of training a program of graduate studies should run concurrently with clinical instruction, covering the fundamentals of neuroanatomy, neuropathology, neurophysiology, psychobiology and psychopathology.

In institutions offering residencies and fellowships of from one to three years' duration, emphasis should be placed on the educational features of the service, and the residents should receive regular instruction from members of the staff in general orientation in the specialty, and diagnostic and therapeutic procedures and methods of clinical study as well as in the organization of ward services. Administrative details, progress notes, and contact with patients' relatives should be kept sufficiently within bounds so that the residents may employ their time in the study and treatment of neurologic and psychiatric disorders. Emphasis should be placed on the study of etiology, pathogenesis, symptomatology and course of the various diseases so that the residents may develop skill and accuracy in diagnosis, as well as mature judgment based on knowledge of the natural history of the diseases and resourcefulness in therapy.

A rotating assignment in psychiatry is essential to give residents adequate experience on the admission services, on the infirmaries and wards, in the therapeutic divisions and in the outpatient clinics. A resident in neurology should have adequate contacts with psychopathic departments, general medicine, pediatrics, contagious disease and tuberculosis services so that he may become familiar with neurologic complications of general diseases, and he should also witness or assist at whatever neurosurgical operations are performed in the hospital. Teaching rounds, clinical and pathologic conferences and seminars are essential for clinical instruction in both fields.

The clinical material must be adequate in kind and amount. Between 200 and 400 admissions a year per resident is considered desirable. Smaller numbers prevent proper survey of the field of neuropsychiatric disorders; larger numbers are incompatible with adequate study of the patients admitted. Similar requirements apply in institutions where separate residencies are offered in the field of epilepsy and mental deficiencies, except that not more than one year of residency in either type of hospital will be considered as preparation for the specialty of psychiatry or neurology. It must be emphasized that residencies in psychiatric and neurologic hospitals are educational in character and that, of the full time psychiatric or neurologic staff of such hospitals, only those physicians who serve primarily on an educational basis come within the residency classification of the Council.

25. Radiology.—(See Department of Radiology, section III.)

26. Surgery.—The requirements for certification by the American Board of Surgery include an approved internship and at least five additional years of special training in surgery. During this period the entire time should be devoted to surgical training supplemented by sufficient experience in the basic sciences of anatomy, physiology, pathology, bacteriology and biochemistry.

Residencies and fellowships organized in accordance with these requirements may be from one to five years' duration but need not necessarily be confined to one institution. In aggregate, however, the training should coincide with the plan described. Individual residencies may be conducted in general surgery, fractures, neurosurgery, plastic surgery, thoracic surgery, traumatic surgery and other surgical divisions now organized as independent specialties. As preliminary training for residencies and fellowships in such specialties as neurosurgery, orthopedics, plastic surgery, thoracic surgery and urology the Council recommends one year of general surgery in addition to the internship.

All surgical departments can readily subscribe to the same general plan of training, although their scope of service may show considerable variation. Training in most of the surgical specialties is ordinarily limited to one division, but residencies in general surgery may well encompass the entire surgical field with the possible exception of ophthalmology and otolaryngology.

It is essential that adequate supervision be maintained by a competent department head responsible for the organization of the graduate program. He should personally direct the plan of clinical and operative training but may well rely on qualified assistants to supervise certain details of the educational service. Residencies and fellowships should emphasize careful training in diagnosis, preoperative therapy and postoperative care. This requires systematic bedside instruction, correlation of clinical and operative data, the study of gross and microscopic pathology, collateral reading, and accurate observations throughout the entire course of the disease. Supplementary instruction should be furnished in the form of departmental seminars, teaching rounds and clinical-pathologic conferences, usually on a weekly basis. It is also desirable that facilities be available for anatomic dissection and experimental surgery on animals or on the cadaver. Surgical training should be obtained under the careful guidance and supervision of competent specialists. It should be sufficient in amount to insure a reasonable degree of technical proficiency and thus enable the residents and fellows to undertake operative work on their own responsibility, especially toward the end of the graduate program.

Equipment and facilities for general and special surgery must be adequate to meet the needs of the service. The clinical material should likewise be sufficient to furnish adequate experience and training in diagnosis, therapy and operative technic. Accordingly it is suggested that general surgical services provide approximately 400 annual admissions per resident. The same amount may not be necessary for separate residencies in fractures, neurosurgery, plastic surgery, thoracic surgery and traumatic surgery, but even in the most limited of these specialties there should be at least 150 patients treated annually.

27. Thoracic Surgery.—(See Surgery; also Tuberculosis.)

28. Traumatic Surgery.—(See Surgery.)

29. Tuberculosis.—(See Medicine.)

30. Urology.—For certification in urology a minimum of five years of special training and practice is required after the internship. This period of preparation should include an active clinical experience of at least eighteen months, graduate training in anatomy, physiology, pathology and other basic sciences, and not less than two years of additional practice.

As preliminary training for residencies and fellowships in urology, the Council recommends one year of general surgery in addition to the internship. Graduate instruction should be organized in accordance with the aforementioned requirements. It should be systematic and progressive in character to the end that adequate training may be obtained in diagnosis, therapy, cystoscopic examinations, pyelography and operative procedures, all under the supervision of a well qualified urologist.

Instruction in the fundamental branches can readily be integrated with the clinical experience. Particular emphasis should be placed on the study of pathology, and residents and fellows might well be required to examine both grossly and microscopically all urologic specimens removed during their term of service. Teaching rounds and departmental conferences are considered essential for systematic clinical instruction.

The department must provide adequate facilities for surgery and special urologic procedures.

Training in surgical technic should be sufficient to enable residents and fellows to undertake operative work on their own responsibility, especially toward the end of the graduate program.

The clinical material should be sufficient in amount and variety to fulfil the teaching needs of the service. It is generally assumed that a minimum of 200 inpatients a year is necessary for advanced training in urology. This amount should be supplemented by outpatient material in cystoscopic and general urologic clinics. Access to gonorrheal clinics would also be of advantage.

X. Resident-Intern Relationship

Those hospitals training both residents and interns should recognize their responsibility to both groups and not curtail too sharply the opportunities ordinarily given to interns by an excess of solicitude for the residents. The residents may, with profit, teach the interns, supervise their records and direct the treatments which interns administer. They should not, however, act so as to diminish the contact of the interns with the attending men or assume the supervisory or disciplinary functions of the staff intern committee.

XI. Recording of Credit

A successful completion of a residency or fellowship is recorded in the biographic files of the American Medical Association. It is important, therefore, that all institutions approved for fellowships and residencies in specialties make annual reports to this office. Periods of service in institutions approved by the Council for fellowships and residencies in

specialties are given full credit without further inquiry. Services in unapproved institutions are recorded as unclassified assignments.

Arrangements are now being made for an interchange of information between the Council and the examining boards responsible for the certification of specialists. In this way the study and appraisal of residencies and fellowships will lead to the formulation of lists approved by the Council and acceptable to the respective boards.

The specialty boards listed below have been approved by the Council in accordance with the following resolutions of the House of Delegates:

Resolved, That the Council on Medical Education and Hospitals is hereby authorized to express its approval of such special examining boards as conform to the standards of administration formulated by the Council; and be it further

Resolved, That the Board of Trustees of the American Medical Association be urged to use the machinery of the American Medical Association, including the publication of its Directory, in furthering the work of such examining boards as may be accredited by the Council.

American Board of Anesthesiology, Inc.,
Paul M. Wood, M.D., Secretary-Treasurer,
745 Fifth Avenue, New York.

American Board of Dermatology and Syphilology,
C. Guy Lane, M.D., Secretary-Treasurer,
416 Marlboro Street, Boston.

American Board of Internal Medicine, Inc.,
William S. Middleton, M.D., Secretary-Treasurer,
1301 University Avenue, Madison, Wis.

American Board of Obstetrics and Gynecology,
Paul Titus, M.D., Secretary-Treasurer,
121 South Highland Avenue, Pittsburgh.

American Board of Ophthalmology,
John Green, M.D., Secretary-Treasurer,
6830 Waterman Avenue, St. Louis

American Board of Orthopaedic Surgery, Inc.,
Fremont A. Chandler, M.D., Secretary-Treasurer,
6 North Michigan Avenue, Chicago.

American Board of Otolaryngology,
William P. Wherry, M.D., Secretary-Treasurer,
107 South Seventeenth Street, Omaha.

American Board of Pathology, Inc.,
Frank W. Hartman, M.D., Secretary-Treasurer,
2799 West Grand Boulevard, Detroit.

American Board of Pediatrics, Inc.,
C. Anderson Aldrich, M.D., Secretary-Treasurer,
723 Elm Street, Winnetka, Ill.

American Board of Psychiatry and Neurology, Inc.,
Walter Freeman, M.D., Secretary-Treasurer,
1028 Connecticut Avenue N.W., Washington, D. C.

American Board of Radiology, Inc.,
Byrl R. Kirklin, M.D., Secretary-Treasurer,
102 Second Avenue S.W., Rochester, Minn.

American Board of Surgery, Inc.,
J. Stewart Rodman, M.D., Secretary-Treasurer,
225 South Fifteenth Street, Philadelphia.

American Board of Urology, Inc.,
Gilbert J. Thomas, M.D., Secretary,
1009 Nicollet Avenue, Minneapolis.

XII. Admission to the Approved List

Institutions that wish to be approved for residencies or fellowships should apply to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago. Application blanks will be furnished and arrangements made for a personal visit of inspection by a member of the Council's staff. Approval is based on full compliance with the foregoing standards. Recognition may be withdrawn whenever it appears that the institution no longer conforms to these Essentials or when the positions remain vacant for a period of two or more years.

ESSENTIALS FOR APPROVED EXAMINING BOARDS IN SPECIALTIES

Revised May 15, 1939

I. Organization

1. A special examining board to be approved by the Council should represent a well recognized and distinct specialty of medicine.

2. It should be composed of representatives of the national organizations of that specialty including the related section of the American Medical Association.

3. It should be incorporated.

4. A special board should:

a. Determine whether candidates have received adequate preparation as defined by the board.

b. Provide a comprehensive test of the ability and fitness of such candidates.

c. Certify to the competence of those physicians who have satisfied the requirements of the board.

II. Definition of Special Fields

The following branches of medicine at present are recognized as suitable fields for the certification of specialists:

1. Internal Medicine
2. Surgery
3. Pediatrics
4. Obstetrics and Gynecology
5. Ophthalmology
6. Otolaryngology
7. Dermatology and Syphilology
8. Neurology and Psychiatry
9. Urology
10. Orthopedic Surgery
11. Radiology
12. Pathology
13. Anesthesiology

III. Qualification of Candidates

Each applicant for admission to the examination should be required to present evidence that he has met the following standards:

A. General Qualifications.

1. Satisfactory moral and ethical standing in the profession.
2. A license to practice medicine.
3. Membership in the American Medical Association is recommended.

B. Professional Education.*

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association.
2. Completion of an internship of not less than one year in a hospital approved by the same Council.

C. Special Training.**

(To be effective not later than Jan. 1, 1942.)

1. A period of study after the internship of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the same Council as competent to provide a satisfactory training in the special field of study.
2. This period of specialized preparation shall include,
   a. intensive graduate training in anatomy, physiology, pathology, and the other basic medical sciences which are necessary to the proper understanding of the disorders and treatment involved in the specialty in question;
   b. an active experience of not less than eighteen months in hospitals, clinics, dispensaries or diagnostic laboratories recognized by the Council as competent in the specialty;
   c. examinations in the basic medical sciences of a specialty as well as in the clinical, laboratory and public health aspects.
3. An additional period of not less than two years of study and/or practice.

IV. Withdrawal

For reasons which are deemed sufficient, in the judgment of the Council on Medical Education and Hospitals, the recognition extended by the American Medical Association to holders of certificates from special examining boards may be withdrawn.

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* Candidates who submit credentials from institutions outside of the United States and Canada should be required to pass the examination of the National Board of Medical Examiners.

** Candidates whose special training has been received outside of the United States and Canada should submit credentials satisfactory to the examining boards.

APPROVED EXAMINING BOARDS IN MEDICAL SPECIALTIES

The announcements of approved examining boards in medical specialties are reproduced herewith.

AMERICAN BOARD OF ANESTHESIOLOGY, Inc.
AN AFFILIATE OF THE AMERICAN BOARD OF SURGERY

T. DRYSDALE BUCHANAN, President, New York.
HENRY S. RUTH, Vice President (Liaison Officer to the American Board of Surgery), Merion, Pa.
PAUL M. WOOD, Secretary-Treasurer, 745 Fifth Avenue, New York.
JOHN S. LUNDY, Rochester, Minn.
E. A. ROVENSTINE, New York.
H. BOYD STEWART, Tulsa, Okla.
RALPH M. TOVELL, Hartford, Conn.
RALPH M. WATERS, Madison, Wis.
PHILIP D. WOODBRIDGE, Boston.

HISTORY

The plan for this organization was devised to conform with those of other examining boards in medical specialties, by a committee representing the American Society of Anesthetists, Inc., the American Society of Regional Anesthesia, Inc., and the Section on Surgery of the American Medical Association. These organizations adopted the tentative plans submitted, and the formation of the American Board of Anesthesiology, Inc., an affiliate of the American Board of Surgery, Inc., was completed on June 2, 1937. The Advisory Board for Medical Specialties, and the Council on Medical Education and Hospitals of the American Medical Association approved the affiliation in 1938. Diplomates of this Board will be designated "A.B. 13" in the Directory and Biographical Departments of the American Medical Association.

PERSONNEL

The members of the examining board were elected by the American Society of Regional Anesthesia, Inc., the American Society of Anesthetists, Inc., and the Section on Surgery of the American Medical Association. Each cooperating society has three representatives, thus giving national and regional representation in the composition of the board.

The term of membership is for six years. Each cooperating association has the appointing power of its representatives subject to the approval of the board.

PURPOSES

1. To establish criteria of fitness to be designated a specialist in the practice of anesthesiology.

2. To improve educational facilities and practice in medical schools and hospitals, and furnish lists of these, together with lists of individual instructors who give adequate instruction and training in anesthesiology.

3. To arrange, control, and conduct examinations to determine the qualifications, and grant a certificate to those who voluntarily apply and meet the required standards. Such certification will serve to provide the public and the professions with the opportunity to select the best available service.

(Conferring of degrees is a prerogative of the universities, and the Board of Anesthesiology makes no attempt to grant degrees, regulate or control the practice of anesthesiology in any way whatsoever, by license or restriction.)

QUALIFICATIONS FOR ELIGIBILITY TO CERTIFICATION

A. *General.*—1. An applicant's moral and ethical standing in the profession must be satisfactory to the entire board. The board must be assured that the applicant is engaged in the practice of anesthesiology as a specialty and that he intends to continue to be so engaged.

2. Membership is required in the American Medical Association or membership in such other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Membership in other societies shall not be required.

3. Practice must be limited to anesthesiology, in accordance with the requirements of the American Board of Surgery.

4. In exceptional instances the board may, in its discretion, accept for examination candidates who have met all the preliminary requirements and have clearly demonstrated their identity as an anesthetist over a period of years but whose formal training does not comply with the full requirements to be exacted in the future.

B. *Professional Standing.*—1. An applicant must be a graduate of a grade A school in the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association, or a graduate of an approved foreign school.

2. Satisfactory evidence must be supplied of completion of an internship of not less than one year in a hospital approved by the same council, or its equivalent in the opinion of the board.

3. An applicant must establish in a manner satisfactory to the Board of Anesthesiology: that he is a physician duly licensed by law to practice medicine; that he is of high ethical and professional standing, and that he has received adequate special training in anesthesiology.

C. *Special Training and Practice.*—1. Before certification the candidate must have had an active experience limited to anesthesiology of not less than four calendar years.

2. The board recommends the inclusion of at least two years of carefully supervised instruction in the clinical phases of anesthesiology in hospital clinics, dispensaries, and diagnostic laboratories recognized by the Council on Medical Education and Hospitals of the American Medical Association as competent in the teaching and practice of anesthesiology. In addition, instruction in anatomy, physiology, pharmacology, biochemistry and other basic sciences which are necessary to the proper understanding of the problems involved in the specialty of anesthesiology is required.

(The board believes that for those entering the specialty after Jan. 1, 1942, the facilities for special training in anesthesiology will be increased and such training will be sufficiently standardized that special training in anesthesiology may be interpreted to include after that date:

(*a*) A period of study, after the internship, of not less than three years in clinics, dispensaries, hospitals, and laboratories recognized by the Council on Medical Education and Hospitals of the American Medical Association as competent to provide a satisfactory training in the special field of anesthesiology.

(*b*) A total period of not less than six years of special training and practice in anesthesiology after internship will be required before certification can be granted.)

EXAMINATIONS

The qualifying examination will be divided into Part I, written, Part II, oral, and Part III, practical.

PART I

1. An applicant, to be eligible for Part I, must meet all requirements and be certified by the central office of the board after his credentials have been approved by the secretary of the board, who shall have recourse to the Examination Committee in doubtful cases.

2. At the board's discretion a candidate may apply for the written examination on basic science and clinical practice on the completion of his courses of special training in these subjects.

3. Part I may be given simultaneously in several centers, throughout the United States, which the board may determine suitable for the purpose.

PART II

1. In order to be eligible for Part II, a candidate must have successfully passed Part I in addition to having met the necessary requirements and having presented definite evidence of an adequate experience in anesthesiology satisfactory to the board.

2. It is probable that Part II examinations will be held at the same time and place as the examinations of the American Board of Surgery. Later, however, as the demand grows, it may be necessary to establish subsidiary centers where this part may be held. At that time it will be necessary for the board to appoint subsidiary boards, consisting of those already qualified to actually conduct such examinations.

PART III

1. It is believed that the practical examination in this field is slightly different from that in most specialties. The examiners would be expected to observe the work of candidates in their own or similar operating room surroundings, their relations to other staff members, and investigate their professional standing.

CONDUCT OF EXAMINATION

Carefully conducted and thorough examinations will be required of candidates. The aim will be to avoid unduly exacting standards above present facilities for study and practice in anesthesiology, and on the other hand, to prevent laxity,

which would nullify the main purpose of the certificate. Thus the type of the examination will depend on a careful review of the work done, years of practice, special courses of study, and professional standing of the applicant.

Written examinations will cover such topics as anatomy, biochemistry, physiology, pharmacology, pathology, physical diagnosis, therapeutics, clinical practice, and public health in relation to anesthesiology.

Oral examinations will cover topics in the above list, and such questions on physics and mechanics as are important in anesthesiology, especially dealing with electrical theories and the proper handling of high pressure gases and flammable agents.

Practical demonstrations will be required of the use of various types of apparatus and technics. Cadavers may be utilized by the candidates to demonstrate anatomical landmarks and technics important in regional anesthesia and for therapeutic and diagnostic procedures. Candidates should also be prepared to demonstrate methods of artificial respiration, and intravenous and pneumotherapy.

GRADES

A candidate must receive a passing average for each part, to be entitled to certification. No candidate shall pass a part who does not receive a grade of 60 per cent or more in each subject of such part. An average grade of 75 per cent shall be required for passing.

A candidate who fails in his examination in Part I will have his papers reviewed by the entire board and will be entitled to reexamination at yearly intervals for two consecutive years without further payment of fee. The board may, however, for sufficient reason, deny a candidate the privilege of reexamination.

FEES

The fee shall be $50, $25 of which shall be paid on filing the application. The remaining $25 shall be paid before taking the examinations. A filing fee of $5 must accompany each application. This fee will not be returned in case of rejection but will be applied to the total fee if the application is accepted.

This board is a nonprofit organization, all fees to be used to extend the existing facilities for training in anesthesiology, after deducting necessary expenses for maintenance of the office, and the conducting of examinations. The board reserves the right to increase the fee when found necessary.

REVOCATION OF CERTIFICATE

All certificates issued by the board shall be subject to revocation by the board at any time, in case it shall determine in its sole judgment that a candidate who has received a certificate either was not properly qualified to receive it or has become disqualified since its receipt.

ADDITIONAL INFORMATION

Every candidate applying for certification must personally appear before the board before being certified.

Application blanks may be secured through the Secretary of the American Board of Anesthesiology. They must be completely filled out, accompanied by the other required credentials, and filed with the secretary of the board at least sixty days prior to the date of examination. Application blanks contain the following statement:

"I hereby make application to the American Board of Anesthesiology, Inc., an affiliate of the American Board of Surgery, for the issuance to me of a Certificate of Qualification as a Specialist in Anesthesiology and for examination relative thereto, all in accordance with and subject to its rules and regulations, and enclose fee of Fifty Dollars ($50.00).* I agree to disqualification from examination or from the issuance of a Certificate of Qualification or to forfeiture and redelivery of such Certification in the event that any of the statements hereinafter made by me are false or in the event that any of the rules governing such examinations are violated by me or in the event that I did not comply with or shall violate any of the provisions of the Certificate of Incorporation or By-Laws of the American Board of Anesthesiology, Inc., an affiliate of the American Board of Surgery, or both, as then constituted. I agree to hold the American Board of Anesthesiology, Inc., an affiliate of the American Board of Surgery, its members, examiners, officers and agents free from any damage or complaint by reason of any action they, or any of them, may take in connection with this application, such examinations, the grade or grades given with respect to any examination, or the failure of said Board or Corporation to issue to me such Certification of Qualification."

Proper forms for making application and other information will be furnished by the secretary.

* This may be paid as follows: $25 with application, and $25 before examination.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY

HOWARD FOX, President, New York.
HAROLD N. COLE, Vice President, Cleveland.
C. GUY LANE, Secretary-Treasurer, 416 Marlboro Street, Boston.
CHARLES C. DENNIE, Kansas City, Mo.
J. GARDNER HOPKINS, New York.
PAUL A. O'LEARY, Rochester, Minn.
ARTHUR W. STILLIANS, Chicago.
FRED D. WEIDMAN, Philadelphia.

ORGANIZATION

At the 1931 meeting of the American Dermatological Association, a committee was appointed to determine the advisability of forming an American Board for the certification of competent practitioners in our specialty similar to boards created by the ophthalmologists, the otolaryngologists and by the obstetricians and gynecologists. A similar committee was appointed by the Section on Dermatology and Syphilology of the American Medical Association at its meeting in the same year. A favorable report was rendered by each committee at the 1932 meeting of each of the above organizations.

The American Dermatological Association voted to accept the report of this committee, and the president appointed the following four members to represent the Association on the newly formed American Board of Dermatology and Syphilology:

Dr. Jay F. Schamberg, Philadelphia.
Dr. Howard Fox, New York.
Dr. Harold N. Cole, Cleveland.
Dr. Arthur W. Stillians, Chicago.

The Section on Dermatology and Syphilology of the American Medical Association also accepted the report of its committee and the chairman appointed the following members to serve as its representatives:

Dr. Howard Morrow, San Francisco.
Dr. William H. Mook, St. Louis.
Dr. George M. MacKee, New York.
Dr. C. Guy Lane, Boston.

The first meeting of the board was held in New Orleans on May 11, 1932, at which time officers were elected. The president and secretary were then appointed a committee to prepare rough drafts of by-laws, certificate of incorporation, booklet of information, etc., to be submitted to the entire board.

Another meeting was held on Nov. 11, 1932, in Philadelphia at which the organization was completed and resolutions were adopted concerning the proper procedure to be followed by the board. On Nov. 29, 1932, the board was incorporated under the laws of the state of Delaware.

PURPOSES

The board has been established primarily to determine the competence of physicians who specialize in dermatology and syphilology. It will prescribe adequate standards of fitness, conduct examinations to test the qualifications of voluntary candidates and grant certificates to candidates who successfully fulfil the requirements of the board.

A second object is to publish lists of physicians, who shall have been certified by the board, for the benefit of hospitals, medical schools, other physicians and the lay public.

A third object is to improve the standards of practice of dermatology and syphilology (1) by investigation of medical school curriculums and (2) by investigation and encouragement of adequate facilities for graduate instruction in this specialty.

CERTIFICATES

A certificate will be issued to each candidate who meets the requirements of the board, to the effect that the holder of the certificate has had adequate training in dermatology and syphilology and has successfully fulfilled the requirements of the board.

It is expected that medical schools, hospitals and physicians, as well as the lay public, will utilize the certificate from this board as a proof of adequate preparation in the field of dermatology and syphilology, and of fitness of candidates for positions under their control. For this purpose lists of those holding certificates from the board will be available for inspection and will be published from time to time by the board. Diplomates will be identified in the Directory of the American Medical Association.

A certificate granted by this board does not of itself confer or purport to confer, any degree, or legal qualifications, privi-

leges, or license to practice dermatology or syphilology. The board does not intend to limit or interfere with the professional activity of any duly licensed physician. Its aim is to elevate the standard of qualification for specialists in our field and to certify as specialists those who voluntarily comply with the requirements of the board.

Certificates will be issued only to physicians in the United States and its possessions, in Canada and in Cuba.

APPLICATION AND FEE

The board desires to appraise the candidate's educational opportunities (premedical, medical and dermatologic), the character of the men under whom he has worked, his hospital and teaching positions, original investigations, contributions to dermatologic literature, membership in medical societies and his local and general reputation.

For this purpose, application must be made on a special blank, which may be obtained from the secretary. No application will be considered unless made on the regular application blank. This application should be forwarded at least two months before the date of examination together with the required reprints, photographs and the fee of $35. This fee will not be returned, and no application will be considered until the fee is received. This fee has been carefully computed and is used entirely for administrative purposes. Members of the board do not receive any compensation except for actual expenses connected with holding the examinations.

Make checks payable to American Board of Dermatology and Syphilology, Inc.

EXAMINATIONS

Applicants classified in group B will be required to pass a written examination. This written examination on clinical and laboratory subjects including cutaneous pathology will be held simultaneously at stated intervals in different parts of the country, approximately two months before the oral examination.

Applicants classified in both groups A and B will be required to pass an oral, clinical and laboratory examination. This examination will be conducted in a clinic or hospital ward where individual cases will be discussed with each candidate. The examination will include the following subjects as related to the skin: histopathology, mycology, allergy, and physics of physical therapy.

The oral examination will be held near the time and place of the annual meeting of the American Academy of Dermatology and Syphilology. This examination will be held only at the time of regular meetings of the board.

Examinations are designed to test the candidate's fitness to practice dermatology and syphilology as a specialty. The board will endeavor to adapt this examination to the candidate's experience and years of practice. It will try especially to ascertain the breadth of his clinical experience, his knowledge of recent literature of dermatology and syphilology and his general qualifications as a specialist in this branch of medicine.

Except in special circumstances, applicants shall take the examination within the year following the filing of application and the deposit of the fee.

Whenever an applicant fails to pass the examination, the board if requested will make suggestions as to suitable courses of instruction for the purpose of overcoming deficiencies in his knowledge of the specialty.

Beginning in 1940 the examination will include the following additional subjects as related to the skin: parasitology, serology and embryology.

REEXAMINATIONS

If the candidate fails or is "conditioned" in an examination he will be admitted to a second examination after one year, but within three years, and must give sixty days' notice of his intention to appear for reexamination. If a candidate who has failed or has been conditioned does not appear for reexamination before the expiration of three years, he will be required to make a new application and pay an additional fee of $35 before reexamination.

A candidate having failed twice must file a new application and pay an additional fee of $35.

REQUIREMENTS FOR CERTIFICATION

I. General Requirements

1. High ethical and professional standing.

2. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association.

3. A license to practice medicine.

4. Satisfactory completion of an internship of not less than one year in a hospital approved by the same Council.

5. Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Except as here provided, membership in other societies is not required.

6. Adequate training in dermatology and syphilology as a specialty. Each applicant must be known personally to one member of the board.

II. Special Requirements

Applicants for certification by the board are classed in two groups as follows:

Group A consists of physicians who have limited their practice mainly to dermatology and syphilology for ten or more years, including a period of training satisfactory to the board.

Group B consists of physicians who have practiced dermatology and syphilology at least five years, including their period of training. Such applicants must have had at least two full years of special training devoted exclusively to dermatology and syphilology, including at least one year in a well recognized clinic or as an assistant in the private practice of a well known specialist in this field.

III. Future Special Requirements

For group B candidates to be examined from Jan. 1, 1940, to Jan. 1, 1945, the board will require two years of full-time planned training in clinical dermatology and syphilology, including adequate instruction in the following subjects related to the skin: histopathology, mycology, physics as related to physical therapy, and allergy.

Beginning Jan. 1, 1945, additional requirements will become effective. By 1940 it is expected that sufficient facilities will be developed throughout the country to provide for three years' training of graduate students in accordance with the minimum requirements suggested by the Advisory Board for Medical Specialties and outlined in a Syllabus issued by the board. These minimum requirements of special training for admission to examination in 1945 shall be as follows:

1. A period of study after the internship of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the same Council and approved by the American Board of Dermatology and Syphilology as competent to provide a satisfactory training in dermatology and syphilology.

2. This period of specialized training shall include:

(*a*) Graduate training in the basic medical sciences which are necessary to the proper understanding of the disorders and treatment involved in this specialty.

The following fundamental subjects as related to the skin are deemed necessary by the board: embryology, histology, chemistry, physiology, bacteriology, mycology, parasitology, pathology, immunology, serology, pharmacology and materia medica, and physics of physical therapy.

(*b*) An active experience of not less than eighteen months in hospitals, clinics, dispensaries or diagnostic laboratories recognized by the same Council and approved by the American Board of Dermatology and Syphilology as competent to provide an adequate preparation.

(*c*) Examinations in the basic medical sciences of a specialty as well as in the clinical, laboratory and public health aspects.

3. An additional period of not less than two years of study and/or practice.

Therefore, candidates beginning their trainirg after Jan. 1, 1940, for certification by this board must plan for a three years course of systematic training as stated in the Syllabus.

In 1945 and thereafter admission to examination by this board will be permissible only to applicants with such training. Classes A and B will be abolished and all candidates will be required to fulfil the same requirements.

REVOCATION OF CERTIFICATES

The certificates issued by the board are issued subject to the provisions of the certificate of incorporation and of the by-laws, and each certificate is subject to revocation in the event that:

(*a*) the issuance of such certificate or its receipt by the physician so certified shall have been contrary to any of the provisions of the certificate of incorporation or by-laws; or

(*b*) the physician so certified shall not have been eligible to receive such certificate, irrespective of whether or not the facts constituting him so ineligible were known to or could have been ascertained by the directors of the Board at the time of the issuance of such certificate; or

(*c*) the physician so certified shall have made any misstatement of fact in his application for such certificate or in any other statement or representation to the Board or its representatives; or

(*d*) the physician so certified shall have been convicted by a court of competent jurisdiction of a felony or of any misdemeanor involving, in the opinion of the Board of Directors, moral turpitude in connection with his practice of medicine; or

(*c*) the physician so certified shall have had his license to practice medicine revoked or shall have been disciplined or censored as a physician by any court or other body having proper jurisdiction and authority.

INSTRUCTIONS TO APPLICANTS

Fill out application blank in detail.

Enclose fee of $35. (Make checks payable to the American Board of Dermatology and Syphilology, Inc.)

Include photographs as directed on application blank.

Enclose reprint of each published paper, if possible.

Send completed applications and above items to the secretary.

Please indicate under No. 13 on the application blank as complete data as possible about your training in dermatology and syphilis. Indicate the month and year, if possible, or at least the number of months of the various parts of your training and also whether full time or part time. If part time indicate whether one-half day, six days a week or three days a week, etc. If dispensary service is considered as part of your training, please indicate details here as well as under No. 14.

In No. 16 indicate clearly when you limited your practice to dermatology and syphilis.

If your training and your practice overlap, please explain under No. 19.

PUBLICATIONS OF THE BOARD

1. Booklet of Information.

2. Opportunities for Graduate and Postgraduate Students in Dermatology and Syphilology, containing a list of places where instruction may be obtained, and details about these places.

3. Registry of Diplomates, containing alphabetical and geographical lists of diplomates of the board.

4. Syllabus, in preparation,

(*a*) To inform the student physician, intending to specialize, of the field to be covered in his preparation and the methods by which it can be accomplished.

(*b*) To aid the medical schools and the dermatological departments of medical schools and hospitals by outlining the scope of teaching required for specialization in dermatology and syphilology.

Further information may be obtained from the secretary.

AMERICAN BOARD OF INTERNAL MEDICINE, Inc.

ERNEST E. IRONS, Chairman, Chicago.
REGINALD FITZ, Vice Chairman, Boston.
WILLIAM S. MIDDLETON, Secretary-Treasurer, 1301 University Avenue, Madison, Wis.
DAVID P. BARR, St. Louis.
LOUIS HAMMAN, Baltimore.
WILLIAM J. KERR, San Francisco.
JONATHAN C. MEAKINS, Montreal, Canada.
JOHN H. MUSSER, New Orleans.
G. GILL RICHARDS, Salt Lake City.

". . . the membership of the Board shall be maintained at the ratio of five members from the American College of Physicians and four members from the Section on the Practice of Medicine of the American Medical Association and that at least three of the members of the Board from the American College of Physicians and two members of the Board from the Section on the Practice of Medicine of the American Medical Association shall be of professorial rank in approved medical schools of the United States or Canada."

"Sec. 5, Art. 5, Articles of Incorporation."

"The term of office of members of the Board succeeding the original Board members shall be three years and until their successors are elected and qualified, and no such member shall serve more than two consecutive three year terms."

"Sec. 7, Art. 5, Articles of Incorporation."

HISTORY AND AUTHORITY FOR ORGANIZATION

The American College of Physicians, through its Board of Regents at the annual session in Philadelphia, on April 30, 1935, adopted a resolution for the establishment, with the Section on the Practice of Medicine of the American Medical Association, of an "American Board for the Certification of Internists." This board to consist of nine members; six to be appointed by the American College of Physicians, and three by the Section on the Practice of Medicine of the American Medical Association. The expenses attending the organization were to be underwritten by the American College of Physicians.

It was further resolved that the American College of Physicians make representations to the Association of American Physicians, acquainting them with the plan of the American College of Physicians for the establishment of a national examining board for the certification of internists, and asking for their comments and cooperation.

This association, through its secretary, advised the American College of Physicians that the above resolution was considered by the Council of the Association at a meeting on May 8, 1935, and that the Council could take no action in the matter as the problem was outside the scope of the activity of that association.

At the annual meeting of the American Medical Association at Atlantic City, N. J., June 10-14, 1935, the Section on the Practice of Medicine adopted the following resolution: "Resolved, that a committee of three, including a chairman be appointed by the chairman of the Section on the Practice of Medicine, to discuss with a committee from the American College of Physicians ways and means whereby an examining board, comparable to such boards already existing in certain specialties, may be set up for the purpose of certification of specialists in internal medicine."

President James Alexander Miller of the American College of Physicians appointed the following as representatives of the college on the joint committee, Jonathan C. Meakins, Montreal; O. H. Perry Pepper, Philadelphia; David P. Barr, St. Louis; John H. Musser, New Orleans; William S. Middleton, Madison, and G. Gill Richards, Salt Lake City.

Chairman William J. Kerr appointed as representatives from the Section on the Practice of Medicine of the American Medical Association Ernest E. Irons, Chicago; Reginald Fitz, Boston, and Walter L. Bierring, Des Moines.

The latter was named as chairman of the joint committee.

The joint committee of nine members held its first meeting in Philadelphia, Dec. 14, 1935, at the office of the American College of Physicians. At this meeting a resolution was adopted to submit an application in due form to the Advisory Board for Medical Specialties, which board functions in conjunction with the Council on Medical Education and Hospitals of the American Medical Association, for authority to organize the American Board of Internal Medicine and for admission to membership in the Advisory Board for Medical Specialties.

At the time of the consideration of the preliminary draft of the constitution and by-laws, the ratio of the representation on the board was changed. The ratio of six and three from the American College of Physicians and the Section on the Practice of Medicine of the American Medical Association, respectively, was changed to five from the American College of Physicians and four from the Section on the Practice of Medicine of the American Medical Association. This new ratio of representation was made a part of the constitution and remains as such.

A committee was appointed consisting of Drs. Meakins, Fitz, Irons and Middleton to prepare the requirements for special training, which requirements were later incorporated in the by-laws.

On Feb. 16, 1936, a subcommittee of Drs. Bierring, Fitz, Irons, Meakins and Middleton, held a meeting in Chicago to formulate and complete the details of the application to be presented to the Executive Committee of the Advisory Board for Medical Specialists, which met in evening session, Feb. 16, 1936, and approved the organization of the American Board of Internal Medicine and directed that the articles of incorporation be completed and properly filed for record.

In keeping with the ratio of membership to be maintained on the American Board of Internal Medicine, James Alexander Miller, president, officially designated Jonathan C. Meakins, O. H. Perry Pepper, David P. Barr, William S. Middleton and G. Gill Richards as representatives from the American College of Physicians, and William J. Kerr, chairman, designated Reginald Fitz, Ernest E. Irons, John H. Musser and Walter L. Bierring to represent the Section on the Practice of Medicine of the American Medical Association.

The articles of incorporation were filed for record with the County Recorder of Polk County at Des Moines, Polk County, Iowa, Feb. 28, 1936.

At the annual session of the American College of Physicians, Detroit, Mich., March 1-6, 1936, the Board of Regents officially approved the American Board of Internal Medicine, and on May 10, 1936, the Advisory Board for Medical Specialties, meeting in Kansas City, gave its final approval to the American Board of Internal Medicine, granting at the same time admission to membership in the Advisory Board for Medical Specialties.

The Council on Medical Education and Hospitals of the American Medical Association approved the board, at its meeting May 12, 1936, and the Section on the Practice of Medicine gave its final approval May 13, 1936.

The first meeting of the board was held at the Palmer House, Chicago, June 14-15, 1936, at which time the officers were chosen for the ensuing year and action was taken as to methods of procedure, time, and place of holding the first written and practical examinations as well as the completion of the final details of administration.

PURPOSE AND OBJECTIVE

The purpose and objective of the board is the certification of specialists in the field of internal medicine, and the establishment of qualifications for such certification and of the procedure necessary for the accomplishment of such objective.

While the board is at present concerned chiefly with the qualification and procedure for certification in the general field of internal medicine, it is intended to inaugurate, as soon as practicable similar qualification and procedure for additional certification in certain of the more restricted and specialized branches of internal medicine, as gastro-enterology, cardiology, metabolic diseases, tuberculosis, allergic diseases, et cetera. Such special certification will be considered only for candidates who have passed the written examination required for certification in general internal medicine. The operation of such a plan will require the active cooperation and participation of recognized representatives from each of such special fields of medicine.

VALUE OF CERTIFICATION

1. An attest of special training and qualification for the practice of internal medicine as a specialty.

2. Publication with internists proper designation in a special registry of certified specialists and in the American Medical Directory.

QUALIFICATIONS OF CANDIDATES

Each applicant for admission to the examination shall be required to present evidence that he has met the following standards:

1. GENERAL.

A. Satisfactory moral and ethical standing in the profession.

B. Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical society or societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Except as here provided, membership in other societies shall not be required.

2. PROFESSIONAL.

A. Graduation from a medical school of the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association.

B. Completion of an internship of not less than one year in a hospital approved by the same council.

C. In the case of an applicant whose training has been received outside of the United States and Canada, his credentials must be satisfactory to the aforenamed council, the Advisory Board for Medical Specialties, and the National Board of Medical Examiners.

3. SPECIAL TRAINING.

A minimum of five years must elapse after completion of a year of internship in a hospital approved for intern training before the candidate is eligible for admission to an examination.

A. Three years of this period must be devoted to special training in internal medicine. This requirement should indicate a period of at least several months of graduate work under proper supervision in anatomy, physiology, biochemistry, pathology, bacteriology or pharmacology, particularly as related to the practice of internal medicine. This work may be carried on in any domestic or foreign medical school or laboratory recognized by the Council on Medical Education and Hospitals of the American Medical Association as offering appropriate facilities for this type of postgraduate training; or it may include a period of at least several months of graduate work under proper supervision in internal medicine or in its restricted and specialized branches in any domestic or foreign hospital, clinic or dispensary, or under the immediate preceptorship of an internist recognized by the above council as offering appropriate facilities for this type of postgraduate experience.

B. A period of not less than two years of special practice in the field of internal medicine or in its more restricted and specialized branches.

MEMORANDUM FOR THE GUIDANCE OF CANDIDATES

The American Board of Internal Medicine does not propose to establish fixed rules for the preliminary training of candidates for certification in this field. Broad general principles for training, however, may be outlined, although such suggestions as are made must of necessity be subject to constant changes reflecting the dynamic nature of the specialty.

1. A sound knowledge of physiology, biochemistry, pharmacology, anatomy, bacteriology and pathology in so far as they apply to disease is essential for continued progress of the individual who practices internal medicine. Such knowledge may be obtained in a number of ways:

A. By properly arranged and supervised graduate courses;

B. By the opportunities for study afforded by the appointment to a junior position in a department of physiology, biochemistry, pathology, etc. (see above) with attendance upon advanced lectures in the other subjects;

C. By advanced study in these subjects while an intern or resident medical officer, and by the application of the principles involved to patients under one's control;

D. By the detailed study, under supervision, of a problem or topic in medicine in which the student brings the basic facts of physiology, pathology, etc., into direct relation with the concrete clinical problem. The analysis of a problem with detailed knowledge of its fundamental pathologic or physiologic background does much to stimulate thoroughness, clear thinking and progress.

2. A portion of the written examination is designed to test the candidate's knowledge in these "preclinical" subjects and especially in their application to disease rather than their purely laboratory aspects.

3. The mere factual knowledge of medicine and its basic sciences is not sufficient. The candidate must have had training in their use in furthering his understanding in clinical medicine. This implies practical experience under the guidance of older men who bring to their clinical problems ripe knowledge and critical judgment. Preparation to meet this requirement adequately may be even more difficult to obtain than the so-called scientific training. It may, however, be acquired in the following ways:

A. By work in a well organized hospital outdoor clinic conducted by competent physicians;

B. By a prolonged period of resident hospital appointments likewise directed by skilled physicians;

C. By a period of training in intimate association with a well trained and critical physician who takes the trouble to teach and guide his assistant rather than to expect him only to carry out the minor drudgery of a busy practice.

4. The board does not consider it to the best interests of internal medicine in this country that rigid rules be formulated as to where or how the training outlined above is to be obtained. Medical teaching and knowledge are international. The opportunities of all prospective candidates are not the same. Some may have the opportunity of widening their knowledge by a period of study abroad. Others, at the other extreme, may be restricted to a comparatively narrow geographic area and their more detailed training must be obtained in short periods of good study scattered over a longer time. Although it is required that at least five years must elapse between the termination of the first intern year and the date when the candidate is eligible to take the examination, a longer period is advisable. The board wishes to emphasize that time and training are but a means to the end of acquiring a broadness and depth of knowledge of internal medicine which the candidate must demonstrate to the board in order to justify it in certifying that he is competent to practice internal medicine as a specialty. The responsibility of acquiring the knowledge as best he may rests with the candidate, while the responsibility of maintaining the standard of knowledge required for certification devolves on the board.

METHOD OF EXAMINATION

The examination required of candidates for certification as specialists in internal medicine will comprise Part I (written), and Part II (practical or clinical).

Part I. The written examination is to be held simultaneously in different sections of the United States and Canada on the third Monday of February and October of each year. This examination will be divided into a morning and an afternoon session of three hours each, and the two sessions A and B will include the following:

A. Question in applied physiology, anatomy, physiological chemistry, pathology, bacteriology and pharmacology as related to internal medicine as well as the cultural aspects of medicine.

B. Questions in general internal medicine.

Part II. Candidates successful in the written tests will be eligible for the practical or clinical examination, which will be conducted by the members of the board * near the time and place of the annual meeting of the American College of Physicians and of the American Medical Association. This examination is conducted at the bed side, and each candidate will be assigned one or more patients in the hospital. A written record of the clinical history and examination is required which forms the basis of the oral conference conducted by one or more examiner.

APPLICATION

Candidates for examination shall make their application on a prescribed form which may be obtained from the office of the secretary-treasurer.

The application shall contain a record of the candidate's premedical and medical training as well as of internships, graduate study, hospital or dispensary staff appointments, teaching positions, membership in medical societies, medical papers published and the names of two well known internists to whom the board may refer for professional and character reference.

The application shall also be accompanied by two recent, unmounted, signed photographs of the candidate and the registration and examination fee of $40, which fee will cover both the written and practical examinations. The registration fee of $10 is not refundable. An additional fee of $10 will be required when the certificate is issued.

CERTIFICATES

The certificate issued by the American Board of Internal Medicine shall be in such form as to comply with the articles of incorporation and the by-laws and shall be signed by the officers and members of the board, and shall bear the official seal of the board.

Certificates of the board will be issued to candidates who have satisfactorily completed the written and practical examinations, and been found qualified by the board to practice the specialty of internal medicine.

REVOCATION OF CERTIFICATES

The American Board of Internal Medicine shall have the sole power, jurisdiction and right to determine and decide whether or not the evidence or information placed before it is sufficient to constitute grounds for revocation of any certificate issued by this board, and the decision of the board in the premises shall be final.

All official correspondence should be addressed to the secretary-treasurer.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, Inc.

WALTER T. DANNREUTHER, President, New York.
JENNINGS C. LITZENBERG, Vice President, Minneapolis.
R. D. MUSSEY, Vice President, Rochester, Minn.
PAUL TITUS, Secretary-Treasurer, 121 South Highland Avenue, Pittsburgh.
E. A., SCHUMANN, Member of Executive Committee, Philadelphia.
JOSEPH L. BAER, Chicago.
G. D. ROYSTON, St. Louis.
LOUIS E. PHANEUF, Boston.
L. A. EMGE, San Francisco.

ORGANIZATION

In 1930 the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, the American Gynecological Society, and the Section on Obstetrics, Gynecology, and Abdominal Surgery of the American Medical Association, each elected three Fellows to constitute the American Board of Obstetrics and Gynecology.

Dr. Walter T. Dannreuther of New York, Dr. Paul Titus of Pittsburgh and Dr. Grandison D. Royston of St. Louis were appointed to represent the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons; Dr. Jennings C. Litzenberg of Minneapolis, Dr. Joseph L. Baer of Chicago, and Dr. E. A. Schumann of Philadelphia were appointed to represent the American Gynecological Society; Dr. Fred L. Adair of Chicago, Dr. R. D. Mussey of Rochester, Minn., and Dr. E. D. Plass of Iowa City, Iowa, were appointed to represent the Section on Obstetrics and Gynecology of the American Medical Association. Dr. Adair and Dr. Plass were succeeded following their recent resignation by Dr. L. E. Phaneuf of Boston and Dr. L. A. Emge of San Francisco.

The board was incorporated and organized and held its first meeting in September 1930. At that time the By-Laws were adopted and provision was made by resolutions for its proper functioning.

This board had been in the process of organization since 1927 and puts into action a determined effort on the part of these three national organizations to improve the standards of practice of obstetrics and gynecology.

Experienced practitioners of the specialty are required to undergo a practical clinical examination, whereas a younger group has both a written and clinical examination and must also submit records of a group of cases in order to qualify for certification.

After 1941, no such distinction will be made, and all applicants will be obliged to fulfill all of the requirements, including the written examination and case records, as well as the general oral-clinical and pathological examination.

PURPOSES

First. To elevate the standards and advance the cause of obstetrics and gynecology.

Second. To determine the competence of specialists in obstetrics and gynecology.

Third. To grant and issue certificates, or other evidence of special knowledge in the field of obstetrics and gynecology, to voluntary applicants and candidates therefor.

Fourth. To arrange, control, and conduct examinations to test the qualifications of voluntary candidates.

Fifth. To serve the public, hospitals and the medical schools by preparing lists of practitioners who shall have been certified by the board. These activities proceed from the certificate of incorporation in which it is stated that "the nature of the business and the objects or purposes proposed to be transacted, promoted and carried on by it" are as follows:

"To encourage the study, improve the practice, and advance the cause of obstetrics and gynecology, subjects which should be inseparably interwoven; and to grant and to issue to physicians duly licensed by law, certificates or other equivalent recognition of special knowledge in obstetrics and gynecology."

NO DEGREES OR LEGAL RESTRICTIONS

Each certificate granted or issued does not of itself confer or purport to confer upon any person any degree or legal qualifications, privileges or license to practice obstetrics or gynecology, nor does the board intend in any way to interfere with or limit the professional activities of any duly licensed physician. Its chief aim is to standardize qualification for specialists in obstetrics and gynecology, and to certify as specialists those who voluntarily comply with the board's requirements.

VALUE OF CERTIFICATE

The national obstetrical and gynecological organizations, which have participated in the formation of the board and are sponsoring its activities, as well as other societies, attach considerable importance to its certificate. Both the medical and the lay public, including hospital directors, have come to utilize the certificate from this board as a means of determining who are well grounded as specialists in obstetrics and gynecology.

Lists of those holding certificates from this board who are limiting their practice to obstetrics and gynecology are published and issued from time to time by the board; similar lists are published by the *American Journal of Obstetrics and Gynecology*, and also appear in the *American Medical Directory*. This latter indicates diplomates of this and other boards by means of numerical symbols appearing in the biographic records. This directory, however, does not give such special recognition to diplomates who fail to maintain membership in the American Medical Association, or the Canadian or other medical societies recognized for this purpose.

A joint directory of specialists certified by the fourteen existing special boards is to be published regularly beginning late in 1939.

This board holds active membership in the Advisory Board for Medical Specialties.

Applicants sign an agreement empowering the board to revoke their certificates and to remove their names from its lists, if they fail to abide by the regulations governing limitation of practice to the specialty or otherwise violate the standards of ethical practice.

* Additional examiners for the practical examination may be requested to be nominated by the Section on the Practice of Medicine of the American Medical Association and the Board of Regents of the American College of Physicians in the same ratio as their representation on the present board and from special societies when their services may be required.

For emphasis it is repeated that the board does not intend to, and cannot, in any way interfere with or limit the professional activities of any duly licensed physician, but its aim is toward adequate qualifications for those who claim to be specialists in obstetrics and gynecology.

ELIGIBILITY REQUIREMENTS

Requirements for Applicants. Each applicant, before he shall become eligible to receive such certificate or other evidence of recognition, (*a*) must establish in a manner satisfactory to the board of directors that he is a physician duly licensed by law to practice medicine, that he is of high ethical and professional standing, and that he has received adequate training in obstetrics and gynecology as a specialty; (*b*) must have had conferred upon him a degree in medicine by an institution of learning approved by the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association; (*c*) must make application to the examiners whose duty it shall be to investigate the applicant's credentials and make a survey of his character; (*d*) must assure the board that he is limiting his practice to obstetrics and/or gynecology and that he intends to continue to do so, and (*e*) must have membership in the American Medical Association, or membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Membership in other societies is not required.

Each candidate should have certain fundamental knowledge of the basic essentials of anatomy, pathology, bacteriology physiology, pharmacology, and therapeutics as related to the practice of obstetrics and gynecology. Clinical training should consist, subsequent to graduation, of at least one year's general rotating internship, and thereafter a special residency in obstetrics and gynecology for a period of at least three years not necessarily consecutive. The board accepts the fifth or "intern" medical school year required at some schools in lieu of the usual fifth or intern "clinical training" year following graduation. As a substitute for such training, service with a qualified preceptor, preferably one who has been certified by the board, may be acceptable. The exact time basis for this has not been specified, and each case will be reviewed and decided separately by the credentials committee. The time for this type of training will vary with the amount of work done with the preceptor. At least a fundamental knowledge of both obstetrics and gynecology is essential regardless of whether a candidate's practice is limited to one or the other branch.

This board deprecates the practice of obstetricians and gynecologists engaging in other fields of practice than that in which they profess to be specialists. The board does not exclude from examination, however, obstetricians or gynecologists who practice abdominal surgery and urology in the female, as well as breast surgery, because of the correlation of these activities. The board has ruled that physicians who accept male patients in their private or other practice, for operative or other care, cannot be regarded as specialists in obstetrics and gynecology. Special certifying boards in general surgery and internal medicine have now been organized and such individuals should apply to these boards for certification.

Application must be on a special blank which may be procured from the secretary and forwarded with the other required credentials and the application fee. Applications must be in the office of the secretary at least sixty days prior to the date of examination.

CLASSIFICATION OF APPLICANTS

Until Jan. 1, 1942, applicants for such certificates or other recognition shall be classified by the credentials committee as follows:

Group A. Those who have limited their practice to obstetrics and/or gynecology for a period of ten years or more, having had adequate special training following a one year general internship.

Applicants who shall have qualified under group A shall be required to undergo and pass a practical, oral, clinical and laboratory examination, including obstetrical and gynecological pathology. The board of directors may grant and issue a certificate or other evidence of recognition to each such applicant who shall have passed such examination in a manner and with a grade satisfactory to the board of directors, and who shall have met all other requirements therefor as hereinabove provided. (After 1941 case records and written examinations will also be required as at present for group B.)

Group B. Those who have had: (1) at least one year of intern service in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association, (2) five years or more practice thereafter, including at least three years of special training in obstetrics and/or gynecology satisfactory to the board of directors, and (3) who are now limiting their practice to obstetrics and/or gynecology. Opportunity for personal responsibility during this period of training is highly desirable.

Applicants who have qualified under group B shall be required to take and pass a written clinical and laboratory examination in obstetrics and gynecology, including obstetrical and gynecological pathology, as well as an oral, practical examination. Each candidate shall submit 50 typewritten case reports of major pathological obstetrical and/or gynecological cases with or without operative procedures. Candidates must attain a passing grade in both the written examination and case histories before becoming eligible for the oral, clinical, and pathological part of the examination. The board of directors may grant and issue a certificate to each such candidate who shall have passed such examination and who shall have submitted reports on such cases in a manner and with a grade satisfactory to the board of directors, and who shall have met all other requirements as hereinabove specified.

Effective Jan. 1, 1942, the requirements for all candidates will be changed to be as follows: Those who have had: (1) at least one year of intern service in a hospital approved by the Council on Medical Education and Hospitals of the A. M. A., (2) a minimum of seven years of practice thereafter, including at least three years of special training in obstetrics and/or gynecology satisfactory to the board of directors, and (3) who are now limiting their practice to obstetrics and gynecology. Opportunity for personal responsibility during their period of training is highly desirable.

APPLICATION BLANK AND FEES

Application must be made on a special blank which may be procured from the secretary and forwarded with the other required credentials and the application fee. The secretary cannot make any eligibility rulings. These are made only by the credentials committee after reviewing the candidate's formal application, which must be completely filled out and previously filed with the secretary. Applications cannot be considered for classification and action by the credentials committee unless accompanied by an application fee of $10, which is not returnable.

The examination fee for candidates is $85, payable when the candidate is notified of his acceptance for examination. This examination fee shall not be returnable after the candidate has been officially accepted by the credentials committee and notified to report for examination. If a candidate fails in his examination he will be admitted to a second examination after one year but within three years without additional fees. After two failures an applicant must file a new application and pay fees, as above, before the third examination.

Applicants declared ineligible for admission to examination may reopen their applications within one year of its filing date without payment of an additional application fee.

Applications and application fees must be in the office of the secretary at least ninety days prior to the scheduled date of the examinations.

The fees, totaling $100, have been carefully computed on a basis of cost of examinations and are used entirely for administrative expenses. Examiners serve without compensation other than actual expenses.

Applicants who fail to exercise the examination privilege within three years of the date of filing the application are required to file a new application and pay a new application fee.

EXAMINATIONS

Written examinations are held simultaneously once yearly in various cities of this country and Canada. Arrangements will be made for candidates to report in any convenient city where there may be a diplomate of this board to conduct or supervise the written examination sent out under sealed cover from the board's office. Case histories must be submitted to the local examiner at the same time.

The written examination and submission of case histories are scheduled for the first Saturday of January. Application on an official application form for admission to these examinations must be filed in the office of the secretary at least ninety days prior to these dates.

Part I of the examination must be taken by all applicants classified in group B, but not by those in group A until 1942.

Part I consists of a comprehensive written examination and the filing of fifty case histories. Only one group B, Part I, examination will be held yearly. No group B candidate is eligible for the oral and pathological examinations until he has passed the written portion and his case histories have been

found satisfactory. The passing grade for the written examination and case records is 75 per cent, and a candidate whose grade in either or both falls below 75 per cent is conditioned. Either or both of these conditions must be removed before the candidate is eligible for Part II. Reexamination for the removal of conditions in Part I may be taken at any regular examination after one year but within three years without additional fees. Candidates who successfully complete the Part I examinations proceed automatically to the Part II examinations held later in the year.

The written examination consists of questions on both obstetrics and gynecology, as evidence of a fundamental knowledge of both branches is required of all candidates. The fifty case records of each group B candidate must be presented with his examination paper to the local examiner. Both the written examination papers and typewritten case records will be reviewed by an examiner located in a remote district from that of the candidate.

Part II. The general oral-clinical and pathological examinations given all candidates will be conducted by the entire board at or near the time and place of the annual meeting of one or more of the national societies represented on this board, usually that of the American Medical Association. Applications must be filed at least ninety days prior to the date of examination. This examination is given to all applicants in group A and group B. The candidates will be expected to identify and discuss several obstetrical and gynecological pathologic specimens and histologic sections. An endeavor will be made to adapt the details of the oral examination to each candidate's experience and practice, and will be particularly directed to ascertain his familiarity with recent obstetrical and gynecological literature, the breadth of his clinical experience, and his general qualifications as a specialist in obstetrics and gynecology.

Examiners report orally upon each candidate to the assembled board, after which the results of their examinations are considered jointly. After a general consideration of the details of the candidate's oral and pathological examination, including a review of his capability and general adaptability, the candidate is passed or failed by the entire board. No conditions are given in Part II of the examination. When a candidate fails in Part II of the examination, he is not required to repeat Part I, but to take a reexamination in the oral, clinical, and pathological portions only.

After 1941, the distinction between candidates in group A and group B will be abolished. After that time new rulings similar to those now pertaining to group B will apply to all applicants, and every candidate will be required to undergo the written examinations and present case records (Part I), as well as the oral-clinical and pathological examinations (Part II).

CASE RECORDS

Case histories need not be copied verbatim from the hospital records but must be sufficiently complete so that the examiner can determine the diagnosis of existing conditions and evaluate the judgment of the candidate in his choice of procedure. Each history must give the hospital number and name of the hospital at which the patient was treated or operated upon, together with all pertinent dates. Histories must be typewritten on standard size paper, 8½ x 11 inches, assembled by individual cases, and submitted without any form of binding other than light weight paper folders. The following data should be as complete as possible: essential points in history and examination; the clinical diagnosis and in operative cases preoperative diagnosis, ample summary of operative procedure; clinical and pathological diagnosis; summary of postoperative course with special reference to morbidity; findings at time of discharge from hospital and at six months "follow-up."

The obstetrical case records should show the date of the first prenatal visit and any special features bearing on the case. The examination of obstetric patients should include a routine serologic test for syphilis; also blood grouping or typing should be noted on histories of patients requiring transfusions. The weight and condition of the child at birth and at the time of discharge from the hospital should be shown on the obstetric history.

In both obstetrical and gynecological case histories not more than ten major selected nonoperative cases may be included. When pathological tissue is removed, adequate gross and microscopic descriptions are required. The candidate and the pathologist are required to employ the accepted nomenclature in the classification of gross and microscopic reports of pathological findings.

A final statement must be prepared for each case, to include an account of the candidate's personal observations of the case both prior to and subsequent to operation. These data must include (1) the basis for the diagnosis, (2) the facts that determined the course of the treatment, and (3) critical conclusions to be drawn from the outcome of the case. Case reports which do not include such discussion and comments will not be reviewed by the examiners. Obstetrical histories which omit measurements of the pelvic inlet and outlet will be considered incomplete.

The group of histories must include a variety of material rather than a number of cases of one type. The histories should be sufficiently detailed so that the examining board, after a careful reading of the records will be able to answer the following questions:

1. Is the diagnosis warranted by the recorded data?
2. If not, how lacking?
3. Are the indications for operation clearly stated?
4. Is the technic satisfactorily described?
5. Do the results justify the procedure?
6. Do the conclusions drawn indicate a grasp of the subject?

Only those records will be credited toward the fifty which carry the candidate's personal deductions, conclusions, and comments, and these records must be diversified.

Note: Two complete index lists of these cases must accompany the records. Separate lists should be made for each individual hospital at which operations were performed. These lists must state the candidate's name, and at the head of each page the name and address of the hospital, the name of the patient, admission number, date of admission, date of operation, and date of discharge. The candidate must have these lists verified by the librarian, or preferably the superintendent, of each individual hospital from which these case records come. All verifications must be formally signed by the responsible hospital official.

Case histories are to be presented with the complete examination paper to the examiner conducting the written examination. They are not to be sent by the candidate to the secretary.

The final action of the board is based upon the candidate's professional record, training and attainments, as well as on the results of his formal examination. Any well qualified obstetrician and gynecologist should have no difficulty in obtaining the certificate, and the board is desirous of receiving applications from those to whom this applies.

Communications should be addressed to the secretary-treasurer.

AMERICAN BOARD OF OPHTHALMOLOGY

CONRAD BERENS, Chairman, New York.
WILLIAM L. BENEDICT, Vice Chairman, Rochester, Minn.
JOHN GREEN, Secretary-Treasurer, 6830 Waterman Avenue, St. Louis.
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CECIL S. O'BRIEN, Iowa City.
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GRADY E. CLAY, Atlanta.

ORIGIN, AIMS AND METHODS

In 1913 the American Ophthalmological Society, the Section on Ophthalmology of the American Medical Association, and the American Academy of Ophthalmology and Otolaryngology appointed committees to report on ophthalmic education.

In 1914 these committees recommended that medical schools of the first class establish graduate courses in ophthalmology leading to an appropriate degree, and that these courses should represent not less than two years of systematic work subsequent to taking the degree of Doctor of Medicine. There was unanimous agreement as to the need of systematized and standardized training of those who are to practice ophthalmology, but it was clear that, in the near future, the number who would take the complete course leading to such a degree would be small. Moreover, such a course would not solve the problem of differentiating, in some degree, between the competent and the incompetent among those now in practice in ophthalmology. The committees were continued and, in 1915, they made further recommendations, as a result of which a joint board was created consisting of three representatives from each of the three special societies.

In 1916, after much preliminary work, this Board was organized as the American Board for Ophthalmic Examinations (later changed to "American Board of Ophthalmology"). It was incorporated May 3, 1917.

In 1934 the plan of organization was changed so that each component society elects four members, instead of three, to form the Board. The members of this Board are chosen in the same manner as the presiding officers of these societies are chosen. One is elected each year by each of the societies represented on the Board, to serve for four years.

As other specialties formed boards similar to the American Board of Ophthalmology the need for some supervising and coordinating control led to action by the American Medical Association in 1933 authorizing the Council on Medical Education and Hospitals: (1) to formulate standards of administration, based on those of the American Board of Ophthalmology, of Otolaryngology, of Gynecology and Obstetrics, and of Dermatology and Syphilology; and (2) to recognize officially new boards meeting these standards.

The Constitution of the Advisory Board for Medical Specialties which was organized in 1934 states that: "This Board shall act in an advisory capacity to such organizations as may seek its advice concerning the coordination of the education and certification of medical specialists."

The Advisory Board adopted June 10, 1934, a list of essentials for approved special examining Boards. It is practically identical with the outline of essentials for approved specialty boards adopted June 10, 1934, by the Council on Medical Education and Hospitals and ratified June 11, 1934, by the House of Delegates of the American Medical Association to become effective after 1942.

CHIEF FUNCTIONS

1. To establish standards of fitness to practice ophthalmology cooperating with hospitals and graduate schools of medicine.

2. To arrange and conduct examinations to test the qualifications of those who practice ophthalmology, and to confer certificates upon those who meet the standards established by the Board.

3. To act as preceptors for prospective students of ophthalmology.

NO DEGREES

The conferring of a degree is left to the universities, where it belongs, and the Board makes no attempt to control the practice of ophthalmology by any license or legal regulation whatever. It simply aims to establish a standard of fitness to practice ophthalmology, and to certificate any who, voluntarily, apply and satisfy the Board of their qualifications.

The following is the wording of the present certificate:

The American Board of Ophthalmology hereby certifies that .....*(name)*..... has pursued an accepted course of graduate study and clinical work, and has successfully passed the examination in ophthalmology conducted under the authority of this Board.

Date.....

Signatures of members of the Board

Many special eye hospitals as well as general hospitals in all parts of the country require the certificate for appointment or promotion on their staffs. In addition, many societies now require the certificate as a prerequisite for membership.

The number of institutions and societies which require the certificate of the Board is increasing.

The American College of Surgeons recognizes the certificate of this Board as evidence of academic fitness in ophthalmology. It requires from candidates for its Fellowship who hold such certificates only half as many case histories as from those who are not so certificated.

Up to Jan. 1, 1939, nearly 1,600 ophthalmologists have received the certificate of the Board.

FEES

The fee for the examination and the certificate of the American Board of Ophthalmology is $50. Of this sum $25, which is not returnable, must accompany the application. The balance of $25 must be paid when the certificate is ready for issuance.

If a candidate fails in an examination, he may be admitted to a second examination within three years, for which there will be no additional fee.

Applications expire three years from date of application. If a candidate has not appeared for examination before expiration of his application, he will be required to apply again and pay an additional application fee of $25.

The fees of candidates are used solely for defraying the actual expenses of the Board. The members of the Board and their associates receive no emoluments.

GENERAL REQUIREMENTS FOR ALL CANDIDATES

1. Application on special blank, which may be obtained from the Secretary, must be filled out accurately. Letters of endorsement from two well known physicians (preferably ophthalmologists) together with any other required credentials must accompany the application and must be sent to the Secretary at least ninety days before the candidate expects to appear before the Board.

2. The candidate must have high ethical and professional standing in his community.

3. Membership in the American Medical Association or such other societies as are recognized for the purpose by the Council on Medical Education and Hospitals of the American Medical Association. In the case of an applicant whose training has been received outside of the United States and Canada, his credentials must be satisfactory to the Board; if he has been in practice less than ten years he should obtain the certificate of the National Board of Medical Examiners.

4. A list of papers or books published by the candidate must be submitted.

5. Reports of ten cases of varied character which have been observed and treated by the applicant are required.

6. An examination divided into Part I (written) and Part II (clinical, practical and laboratory). In both of these examinations a knowledge of the practical application of the basic sciences of ophthalmology will be required.

7. Citizenship in country where candidate practices.

The final action of the Board is based on the candidate's professional record, training and attainments as well as on the results of his formal examinations.

GENERAL EDUCATIONAL REQUIREMENTS

(Applicable as far as possible after 1942)

1. A degree from a medical school of high standing satisfactory to the Board and approved by the Council on Medical Education and Hospitals of the American Medical Association. In the case of an applicant whose training has been received outside of the United States and Canada, his credentials must be satisfactory to this Board. He may be required to obtain the certificate of the National Board of Medical Examiners.

2. Completion of an internship of not less than one year in a hospital approved by the same Council.

SPECIAL TRAINING

(Applicable as far as possible after 1942)

A period of combined study, training and practice of not less than three years in approved medical schools, hospitals, clinics, dispensaries, laboratories, perceptorships and private practice.

(A total of five years will be required of candidates practicing eye, ear, nose and throat.)

1. This shall include graduate study of the basic medical sciences which are fundamental to the intelligent practice of ophthalmology, particularly: anatomy, histology, embryology, optics, physiologic optics, visual physiology and psychology, pathology, bacteriology, pharmacology. Mere factual knowledge of these subjects is not sufficient. The candidate must have had training in their application and in their use in clinical ophthalmology, especially in refraction, disorders of motility and binocular vision, perimetry, and in the skilful adjustment and use of instruments such as the ophthalmoloscope, retinoscope, slit lamp and microscope.

2. Active clinical experience in approved hospitals, clinics, dispensaries and private practice. Library and laboratory facilities should be utilized for the intensive study of cases.

The subject matter to be covered under 1 and 2 is outlined in the syllabus prepared by the Board.

These requirements may be met in various ways:

BASIC STUDIES

A—By courses in approved graduate medical schools.

B—By the opportunities for study afforded by the appointment to a junior position in one of the departments with attendance at advanced lectures in the other subjects.

C—By advanced study of these subjects while a resident and by application of the principles involved to patients under one's control.

D—By the detailed study, under supervision or as assistant to an experienced research worker, of some problem or topic which brings the basic facts of physiology, pathology, etc., into direct relation with the concrete clinical problem. The analysis of a problem with detailed knowledge of its fundamental physiologic and pathologic background does much to stimulate thoroughness, clear thinking and progress.

CLINICAL EXPERIENCE

A—By residency in an approved hospital. The most desirable of these residencies have regular lectures covering the whole field of clinical ophthalmology and of the basic subjects as applied in clinical practice. Many of these have seminars at which residents report cases which they have carefully worked up. These are discussed by the other residents and by the staff and the method of presentation as well as the subject matter critically considered.

B—There are many residencies, usually of 12 months, which do not furnish regular instruction by lectures and quizzes and seminars. If he has access to a good library and laboratory, the student can learn a great deal and has some advantages over the man who expects to be "spoon-fed." The syallbus prepared by the Board will guide him in his selection of topics to be studied.

C—There are some opportunities to continue the study and experience by securing appointments as Fellows.

D—By a period of training in association with a well trained and critical ophthalmologist who takes the trouble to teach and guide his assistant.

E—After completing a residency it is of great advantage to secure a position in a clinic as fellow or assistant. This may require only part time work, but due credit will be given. Its value to the student depends on how much study he puts into it and on how competent his seniors are.

F—Research under competent critical and sympathetic supervision will give first hand insight into (1) the methods whereby old knowledge was and new knowledge is acquired, and (2) the pitfalls which accompany attempts to enlarge the sphere of knowledge. Only in this way can the candidate evaluate facts of the past and present in the intelligent critical way which is expected of the specialist.

The candidate who cannot secure the type of residency he desires should not despair, for his progress depends far more on how he uses his opportunities than on the opportunities themselves.

WHAT CONSTITUTES THE EXAMINATION

In determining the question of certification, the examiners rely on the following criteria:

1. The applicant's professional record;
2. The applicant's case reports;
3. A written examination;
4. A practical clinical and laboratory examination.

CASE REPORTS

Detailed instructions for the preparation of case reports should be obtained from the Secretary.

WRITTEN EXAMINATION: PART I

The written examination may be given simultaneously in as many cities as the Board may determine suitable for the purpose. A candidate, to be eligible for Part I, must meet all general requirements. Arrangements will be made for candidates to report in a convenient city where there may be a Board member, or an Associate member, to conduct and supervise the written examination.

These examinations will not be given at the time of the oral and clinical examinations or Board sessions but will be held at least sixty days before such examinations simultaneously in different parts of the country at places reasonably convenient to candidates.

No candidates shall be eligible for the practical examination until he has passed the written examination and his case reports have been found satisfactory. In the event of failure in either or both of these preliminary tests, a candidate is conditioned and the conditions must be removed before the candidate is eligible to appear for the practical (Part II) examination.

The written examination questions will be on all subjects as follows:

External Diseases.	Perimetry and Campimetry
Ophthalmoscopy	Relation of the Eye to General Diseases
Pathology-Histopathology	Therapeutics and Operations (including Practical Surgery)
Refraction and Retinoscopy	Optics and Visual Physiology
Anatomy and Embryology	
Ocular Motility	

Written examination papers will be reviewed by examiners who reside in districts remote from those in which the candidate practices.

PRACTICAL AND CLINICAL EXAMINATION: PART II

The purpose of the examination is to determine the competence of the candidate to practice ophthalmology.

Candidates must be prepared to be examined in the whole field covered by the syllabus of the Board. The time spent in preparation will count less than the knowledge and experience acquired as shown on examination.

The subdivisions of the practical examination are as follows:

1. External diseases of the eye, lacrimal passages, etc., including inspection, focal illumination, use of loupe and slit lamp, examination of reactions of the pupil, of tension by tonometer and by fingers.

2. Ophthalmoscopy. Several patients will be examined by the candidate and the findings described or drawn. The ability to see with the ophthalmoscope and to interpret what is seen, and the systematic and thorough methods of examination used by the candidate will count for more than mere statement of diagnosis. A candidate should bring his own ophthalmoscope so that he may not suffer the handicap of an unfamiliar instrument.

3. Pathology. The candidate should be familiar with general clinical pathology as well as the etiology, pathology, and bacteriology of diseases of the eye. He will be asked to examine microscopic slides and to recognize ordinary normal and pathologic histology of the eye and to identify the commoner microorganisms.

4. Refraction. A candidate will examine patients and show mastery of various methods, and of the principles of refraction and of retinoscopy. He should bring his own retinoscope.

5. Ocular Motility. The candidate will demonstrate upon patients his familiarity with routine methods of examination for abnormalities of the ocular muscles.

6. Practical Surgery. A candidate will demonstrate his surgical technic upon animals' eyes. To have the advantage of using instruments with which he is familiar, he should bring his own equipment for performing a regular combined extraction of the lens.

DATES OF PART II EXAMINATION

Examinations will be held annually at or near the time and place of the meeting of the American Medical Association; also at other times and places at the discretion of the Board, depending on the number of applications from any region.

Notices of all examinations will be found in The Journal of the American Medical Association, and in the special journals of ophthalmology.

REEXAMINATION

Candidates may be reexamined as often as they desire, provided they give satisfactory evidence of adequate preparation. Six months must elapse between examinations and the Board may, at its discretion, deny the candidate the privilege of reexamination.

REVOCATION OF CERTIFICATE

Any certificate issued by the Board shall be subject to revocation by the Board at any time in case it shall determine in its sole judgment that a candidate, who has received the certificate of the American Board of Ophthalmology, either was not properly qualified to receive it, or has since its receipt become disqualified.

PREPARATORY GROUP

In establishing a Preparatory Group of prospective candidates for its certificate, the American Board of Ophthalmology plans to assist physicians who wish to study ophthalmology so that they will be acceptable as candidates for examination and certification when they have completed the requirements.

Any graduate or undergraduate of an approved medical school is eligible to make application for membership in this group. Candidates so applying will be notified officially by the secretary when the Board has accepted their applications. If accepted, data will be sent concerning ethical and educational requirements. Syllabuses and other information will be made available to them. The Board desires to help candidates improve their opportunities so that they will be fully prepared for the examination.

It is essential that candidates conduct themselves in an entirely ethical manner to the end that they bring honor to the profession.

Information and counsel will be available at all times to accepted candidates in this group through advisers who are members or past members of the Board.

Members of the Preparatory Group must keep a summarized record of their activities, two copies of which will be sent to the Secretary in January of each year and will be incorporated in the final application for examination and certification.

The fee for application for membership in the Preparatory Group is $10. This will be deducted from the $50 which is required of every candidate for examination. When the candidate makes application for the examination, he will be required to pay $25, and the balance of $15 must be paid when the certificate is issued. No fees will be refunded.

It is of increasing importance that a physician specializing in diseases of the eye obtain the certificate of the American Board of Ophthalmology. The American Medical Association will especially designate certificated ophthalmologists in future directories. A special directory of all certificated specialists will be published by the Advisory Board for Medical Specialties.

Many national and local ophthalmologic societies demand the certificate of the American Board of Ophthalmology before admission. Promotion in many hospitals cannot be obtained unless the applicant holds the certificate of the Board.

For sufficient reason, a person enrolled in this Preparatory Group may be dropped by vote of the Board.

Communications should be addressed to the secretary.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY, Inc.

WILLIS C. CAMPBELL, President, Memphis, Tennessee.
EDWIN W. RYERSON, Vice President, Chicago.
FREMONT A. CHANDLER, Secretary-Treasurer, 6 North Michigan Avenue, Chicago.
GEORGE E. BENNETT, Baltimore.
MELVIN S. HENDERSON, Rochester, Minnesota.
SAMUEL KLEINBERG, New York City.
PHILIP LEWIN, Chicago.
JOHN C. WILSON, Los Angeles.
PHILIP D. WILSON, New York City.

INTRODUCTION

The rapid growth of specialism and the increasing number of physicians limiting themselves in their practice to one branch of medicine or surgery emphasize the need for the proper certification of specialists in the various branches of the medical science. In recognition of this condition the American Board of Orthopaedic Surgery, Inc., aims to elevate the standard of qualifications for the practice of orthopaedic surgery and to certify those surgeons who voluntarily comply with its requirements.

In order to place orthopaedic surgery on the highest possible plane, the American Orthopaedic Association, the Section on Orthopaedic Surgery of the American Medical Association and the American Academy of Orthopaedic Surgeons united in organizing a certifying board which was incorporated in the year 1934 as the American Board of Orthopaedic Surgery, Inc.

The American Board of Orthopaedic Surgery, Inc., has been officially approved by the Advisory Board for Medical Specialties and by the Council on Medical Education and Hospitals of the American Medical Association.

WHAT THE BOARD WILL ACCOMPLISH

1. Certification by the Board will establish a criterion to both interested lay and professional groups for judging the qualifications of an orthopaedic surgeon. Thus a reliable guide will be furnished for the choosing of consultants.

2. Hospitals and other organizations will no doubt establish rules limiting service on their permanent staffs to those certified by the Board.

3. It will gradually tend to limit the practice of orthopaedic surgery to those properly qualified.

4. Certification by the American Board of Orthopaedic Surgery is one of the essential requirements for membership in the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons.

Excerpts from Articles 1, 2, 7 and 8 of the By-Laws.

Article 1. *Section 1.* DEFINITION. Orthopaedic Surgery is that branch of surgery especially concerned with the preservation and restoration of the functions of the skeletal system, its articulations and associated structures.

Article 2. *Section 2.* PURPOSES. To test and determine the qualifications of applicants for registration and to issue certificates to those found qualified.

Section 3. To prepare and maintain a registry of the holders of the certificates issued by the Board.

Section 4. To serve the public, physicians, hospitals and medical schools by furnishing lists of those who have received the certificate of the Board, and thus to assist in protecting the public against irresponsible and unqualified practitioners who profess to specialize in orthopaedic surgery.

Article 7. *Section 1.* APPLICATION FOR CERTIFICATE. Each application for a certificate shall be filed with the secretary upon the prescribed form, and shall be accompanied by the fee which the Board may fix from time to time. It shall also be accompanied by an unmounted autographed recent photograph of the applicant and the names of two orthopaedic surgeons acceptable to the Board, who may be referred to for information in regard to the applicant.

Section 2. The applicant must have the following qualifications:

(a) He must be a graduate of a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association.

(b) He must be of high ethical and professional standing.

(c) He must be a citizen of the United States or Canada.

(d) He must be duly authorized to practice medicine in the state or province of his residence.

(e) He must be a member of the American Medical Association or another society approved by the Council on Medical Education and Hospitals of the American Medical Association.

(f) He must have had one year of internship in a general hospital acceptable to the Board.

(g) After Jan. 1, 1940, he must have had three years of concentrated instruction in orthopaedic surgery approved by and acceptable to the Board. (A residency of at least two years on an orthopaedic service of a hospital recognized by the Council of the American Medical Association is desirable.)

(h) He must have knowledge of the basic medical sciences related to orthopaedic surgery.

(i) He must have had at least two years' further experience in the actual practice of orthopaedic surgery. Continuation of training (g) beyond the three years required will not be considered as actual practice unless the position of the candidate is considered permanent or his responsibilities equivalent to those encountered in private practice. This means that interns, residents, fellows, graduate students and assistants will not be credited with additional periods of training unless they are permanent members of the organizations with which they are associated.

(j) He must have limited his work to the field of orthopaedic surgery for at least two years prior to the submission of his application for examination.

(k) In the case of an applicant whose training has been received outside of the United States and Canada, his credentials must be satisfactory to the Council on Medical Education and Hospitals of the American Medical Association and to the National Board of Medical Examiners. In addition, he must have been engaged in the practice of orthopaedic surgery in the United States (or Canada) for at least three years prior to the submission of his application.

Section 3. Each applicant shall be examined and his qualifications determined by the Board in such manner as it may designate, and his record shall be reviewed by the Board in the light of all assembled information.

Article 8. *Section 1.* CERTIFICATE. If the applicant be found qualified therefor, a certificate that he has been found by this Board qualified to practice orthopaedic surgery shall be issued to him. The certificate shall be in such form as may be adopted by the Board, and shall be signed by the officers and members of the Board.

EXAMINATION

Examinations will be held once or twice a year. If feasible, these examinations will be in conjunction with meetings of the major orthopaedic societies.

Oral and written examinations will be held on clinical, anatomical and pathological phases of orthopaedic surgery. Anatomical and pathological laboratories and hospital wards will be used when practicable.

APPLICATION FOR CERTIFICATION

Application forms may be obtained from the Secretary of the Board. These should be filled in accurately and returned not less than ninety days prior to the next examination. An autographed photograph and the fee must accompany the application.

FEES

A fee of $50 must accompany the completed application form. This fee will be returned only in the cases of candidates found ineligible for examination. Address communications to the secretary-treasurer.

AMERICAN BOARD OF OTOLARYNGOLOGY

HARRIS P. MOSHER, President, Boston.
BURT R. SHURLY, Vice President, Detroit.
WILLIAM P. WHERRY, Secretary-Treasurer, 107 South 17th St., Omaha.

BOARD OF DIRECTORS

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FRANK R. SPENCER, Boulder, Colo.

ORIGIN, AIMS AND METHODS

SOURCE OF AUTHORITY

In 1924 the American Otological Society, the American Laryngological Association, the American Laryngological, Rhinological and Otological Society, the American Academy of Ophthalmology and Otolaryngology, and the Section on Laryngology, Otology and Rhinology of the American Medical Association, each appointed two members, making a total of ten members, to constitute the first American Board of Otolaryngology. These appointments were made at the request of Dr. George E. Shambaugh of Chicago, whose persistent efforts resulted in the establishment of the Board.

Dr. T. H. Halsted of Syracuse, New York, and Dr. H. W. Loeb of St. Louis were appointed to represent the American Otological Society; Dr. H. P. Mosher of Boston and Dr. R. H. Skillern of Philadelphia were appointed to represent the American Laryngological Association; Dr. B. R. Shurly of Detroit and Dr. F. R. Spencer of Boulder, Colorado, to represent the American Laryngological, Rhinological and Otological Society; Dr. T. E. Carmody of Denver and Dr. W. P. Wherry of Omaha to represent the American Academy of Ophthalmology and Otolaryngology; and, Dr J. C. Beck of Chicago and Dr. R. C. Lynch of New Orleans to represent the Section on Laryngology, Otology and Rhinology of the American Medical Association.

CHIEF ACTIVITIES OF THE BOARD

First. To establish standards of fitness to practice otolaryngology.

Second. To arrange, control and conduct examinations to test the qualifications of those who desire to practice Otolaryngology and to confer a certificate upon those who meet the established standards.

These activities proceed from the object of the Corporation which is stated in the Articles of Incorporation to be:

"The object of the corporation shall be to elevate the standard of otolaryngology, to familiarize the public with its aims and ideals, to protect the public against irresponsible and unqualified practitioners, to receive applications for examination in otolaryngology, to conduct examinations of applicants, to issue certificates of qualification in otolaryngology and to perform such duties as will advance the cause of otolaryngology."

NO DEGREES

The conferring of a degree is left to the universities, where it belongs, and the Board makes no attempt to control the practice of otolaryngology by efforts to promote any license or legal regulation whatever. It simply aims to establish a standard of fitness to practice otolaryngology, and to certificate those who voluntarily apply and satisfy the Board of their qualification.

VALUE OF CERTIFICATE

The five National Otolaryngological Associations responsible for the organization of the Board are sponsoring its activities. Four of these associations require the Board certificate from each applicant for membership.

Other important societies and organizations are following the example of these influential organizations. Moreover, the certificate of the Board is required of candidates for appointments in many and various important positions in hospitals, colleges, etc. It is expected that the medical public and the lay public will learn to discriminate between those who are well fitted and those who are not, and will be influenced by the certificate of the Board in arriving at their conclusions.

POINT OF VIEW OF EXAMINERS

Examinations are designed to test the candidate's fitness to practice otolaryngology, and will be conducted in a thorough manner. Yet it will be the aim of the examiners to be broad-minded, avoiding on the one hand an unduly exacting standard above present available facilities for preparation to practice otolaryngology, and, on the other hand, a laxity which would defeat the whole purpose. Thus an older practitioner may not be minutely versed in certain of the newer details of anatomy, physiology, pathology, etc., which he may once have known, yet his grasp of the science and art of otolaryngology, and his fitness and competence to practice may be of a high order.

On the other hand, to expect and to demand of the recent graduate the mature, well balanced judgment and sagacity of the older practitioner, would be equally unfair. The examination will be adapted to both classes.

This movement is undertaken for the purpose of raising the standard of otolaryngology. Whenever applicants fail to pass the examination, it will be the desire of the Board to induce such men to make an effort to overcome their deficiencies, and the Board will gladly, when requested, make suggestions as to what courses should be pursued by such applicants to enable them to establish their fitness.

CLASSIFICATION OF CANDIDATES

Applicants for examination and for the Certificate of the Board are divided into classes according to the length of time they have practiced otolaryngology.

(Limited practice in otolaryngology interpreted as 90% Otolaryngological practice—Ophthalmology excepted.)

Class I—Limited Practice—15 years or more.
Class II—Limited Practice—10 to 15 years.
Class III—Limited Practice—5 to 10 years.
Class IVA—Limited Practice—5 years.
Class IVB—Limited Practice—3 and 4 years.

(Candidates having completed a satisfactory residency or an acceptable full academic year basic science course.)

REQUIREMENTS

UNTIL JAN. 1, 1942

The following general requirements are demanded by the board:

First. A candidate acceptable for the examination must be a graduate from a school approved by the Council on Medical Education and Hospitals of the American Medical Association; furthermore, he must have at least one year of internship in an approved hospital.

Second. Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Except as here provided, membership in other societies should not be required.

Third. In addition, a candidate must have completed at least three years graduate preparation for the specialty, at least one year (more desirably two) in a recognized residency or in basic courses and followed by private practice in otolaryngology.

Fourth. Five years of specialized practice will be accepted in lieu of the requirements of paragraph 2 until Jan. 1, 1941.

Fifth. Application must be made on a special blank procured from the Secretary. It must be executed and returned to the Secretary, together with other required credentials sixty days in advance of the examination at which the candidate desires to appear.

Sixth. All applicants must send a small photograph with application and must present themselves in person before the Board.

Seventh. Fee for the examination is $50 and same must accompany application blank. No application will receive consideration until fee is paid.

Eighth. An application remains valid only five years—therefore, an applicant must appear for examination within this time or forfeit fee. The fee under no circumstances is returnable.

If the candidate fails in an examination he will be admitted to a second examination after one year, but within the regulation time limit of his application. Sixty days' notice of intention to appear is required. If a candidate who has failed does not appear before the expiration of validity of his application he will be required to make new application and pay additional fee of $50 before reexamination.

An applicant having failed twice, must file a new application, pay an additional fee of $50 and convince the Board of additional postgraduate study previous to being assigned appointment for another examination.

Examinations covering two days will be held bi-annually at, or near, the time and place of meeting of the American Medical Association, and of the American Academy of Ophthalmology and Otolaryngology.

An extra examination is sometimes held provided the class of applicants is large enough to warrant it.

Candidates are required to sign the following pledge:

I hereby apply to the American Board of Otolaryngology for examination by the said board in accordance with its rules and herewith enclose the fee of fifty dollars. I hereby agree that prior to an examination, or subsequent to my examination, the board may investigate my standing and reputation as a physician, including my reputation for complying with the standard of ethics of the profession, and may refuse to examine me, or, having examined me, may refuse a certificate, and such refusal to grant a certificate, whether justified or otherwise, may not and shall not be questioned by me in any court of law or equity or other tribunal, nor shall I have any claim, in the event of such refusal, to a return of the fee accompanying this application.

PRACTICAL EXAMINATION

1—Written examinations:
Detail Anatomy—Class IVA, Class IVB.
Regional Anatomy—Class III.
2—Pathology:
Microscopy—Class IVA, Class IVB.
Gross—Class III.
3—Clinical examination of patients: To include history taking; physical and functional examinations; use of laboratory and x-ray findings; discussion of differential diagnosis; and discussion and defense of his findings, opinion and suggested management.
All classes.
4—Didactic examination to be a private, oral examination covering any aspect of otolaryngology and its interrelation with general medicine.
All classes.
Communications should be addressed to the secretary.

AMERICAN BOARD OF PATHOLOGY, Inc.

A. H. SANFORD, President, Rochester, Minn.
FREDERICK H. LAMB, Vice President, Davenport, Iowa.
FRANK W. HARTMAN, Secretary-Treasurer, 2799 W. Grand Blvd., Detroit.
ALVIN G. FOORD, Pasadena, Calif.
HOWARD T. KARSNER, Cleveland.
ROY R. KRACKE, Emory University, Ga.
E. B. KRUMBHAAR, Philadelphia.
J. J. MOORE, Chicago.

ORGANIZATION

In June 1935 the Section on Pathology and Physiology of the American Medical Association and the American Society of Clinical Pathologists appointed committees which acted jointly in consideration of the feasibility and necessity of a national qualifying board. The joint committees agreed unanimously that such a board should be established and proceeded to draw up by-laws for such a board. In May 1936 the American Society of Clinical Pathologists and the Section on Pathology and Physiology of the American Medical Association accepted the proposed by-laws, authorized the nomination of four members each to the board and suggested incorporation in the state of Michigan. Approval of the Board by the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the A. M. A. was given. On July 19, 1936, the organization of the Board was carried out in Chicago. The officers of the Board, elected at this meeting, were:

A. H. Sanford, President.
Frederick H. Lamb, Vice President.
F. W. Hartman, Secretary-Treasurer.

Dr. Karsner of the A. M. A. Section and Dr. Foord of the A. S. C. P., whose terms on the Board expired in 1938, were renominated by their respective organizations and were reelected by the Board. The president, vice president and secretary-treasurer were also reelected for 1938-1939.

PURPOSES

A. To encourage the study and promote the practice of pathology.

B. To elevate the standards and advance the cause of pathology, by encouraging its study and improving its practice.

C. To determine the competence of those wishing to practice this specialty of pathology and to arrange, conduct, and control investigations and examinations to determine the qualifications of such individuals who voluntarily apply for the certificates issued by the corporation.

D. To grant and issue certificates in the special field of pathology to voluntary applicants therefor and to maintain a registry of holders of such certificates.

E. To serve the public, the medical profession, hospitals, and medical schools by preparing and furnishing lists of specialists who have been certified by the corporation.

VALUE OF THE CERTIFICATE

Judging from the experience of other specialties operating a certifying board it is anticipated that the certificate will be of value in that the medical profession, the lay public, and hospital administrators will utilize certificates from the Board as a means of discriminating between those that are thoroughly qualified in pathology and those that are not. Lists of those holding certificates will be made available from time to time by this Board through the publication of the same in pamphlets and in national medical journals.

BOARD NOT AN EDUCATIONAL INSTITUTION

The Board is in no sense an educational institution and the certificates of the Board are not to be considered degrees. Therefore the certificate does not confer on any person legal qualifications, privileges, or license to practice medicine or the specialty of pathology. The Board does not purport in any way to interfere with or limit the professional activities of any licensed physician. Its chief aim, as stated above, is to standardize the qualifications for the specialty of pathology and to issue certificates to those voluntarily complying with the requirements of the Board.

GENERAL REQUIREMENTS

A. General qualifications.
1. Satisfactory moral and ethical standing in the profession.
2. License to practice medicine.
3. Membership or associate membership in the American Medical Association or by courtesy membership in such Canadian or other national medical societies as are approved by the Council on Medical Education and Hospitals of the American Medical Association.
4. That the applicant devotes his time primarily and principally to the practice of pathology.

B. Professional education.*
1. Graduation from a medical school in the United States or Canada, approved by the Council on Medical Education and Hospitals of the American Medical Association.

C. Special training, to be effective after July 1, 1938:
1. Completion of an internship of not less than one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association.
2. A period of study, exclusive of internship, of not less than three calendar years, exclusive of reasonable vacation periods, in an institution or department of pathology recognized by the same Council and the Board of Trustees as competent to provide a satisfactory training in the field of pathology. This period of special training preparation shall include the following:
(a) Graduate training for one year in the various phases of clinical pathology.
(b) Training and experience of not less than two years in a department of pathologic anatomy.
(c) Such training may be combined or in sequence.
3. A fifth year of training or practice in pathology.

D. Special qualifications:
1. The board may accept candidates without special training as outlined in Section C above provided that:
(a) The candidate shall have been for a period of five years of professorial rank in a department of pathology in an approved medical school, or

* NOTE: In case of an applicant whose education and/or training has been received outside the United States or Canada, his credentials must be acceptable to the National Board of Medical Examiners and the American Board of Pathology.

(b) The candidate shall have been practicing pathology for ten years in a senior position in a hospital, having an adequate department of pathology, and approved by the Council on Medical Education and Hospitals of the American Medical Association.

Candidates with special qualifications, as outlined in Section D above, may be certified without examination, at the discretion of the Board.

APPLICATION BLANK AND FEE

Application must be made on the special form which may be procured from the secretary and forwarded with other required credentials and the application fee. Applications cannot be given consideration by the Board unless accompanied by the application fee.

The application or examination fee for candidates is $35. If certified without examination $10 of fee will be refunded. If the candidate fails in his examination he will be admitted to a second examination after one year, but not later than three years, without additional fee. After two reexaminations the applicant must file a new application and pay an additional fee before a fourth examination will be given.

The examination fee of $35 has been arrived at after careful consideration, and is based on actual estimates of the expense of examination and administration. None of the Board members receive any compensation for their services except actual expenses incurred.

If the applicant, for any reason, is deemed ineligible for examination by the Board his fee will be returned; however, the application fee is not returnable after the candidate has officially been accepted for examination and notified to report for the same.

EXAMINATIONS

Written and oral examinations will be held at or near the time and place of national medical meetings at the discretion of the Board. If a number of applications from any region of the country are received an examination in conjunction with a national medical meeting in that section will be arranged so that the financial outlay of the applicant in meeting the examiners will be as small as possible.

The examinations are to be based on the broad principles of pathology with emphasis on diagnosis and interpretation. The applicant may apply for certification in either pathologic anatomy or clinical pathology, or both. These general subjects have been defined in the by-laws as follows:

1. Pathologic anatomy is that branch of pathology which deals with the morphological aspects of disease, recognition being given that this definition covers two phases of pathology.

(a) The applied phase, with special attention to biopsy description and diagnosis.

(b) The academic phase of teaching and general morphological diagnosis.

2. Clinical pathology is that branch of pathology which deals with bacteriology, immunology, biochemistry, parasitology, hematology, and clinical microscopy, in relation to the diagnosis, prognosis, and treatment of clinical disease.

All communications should be addressed to the secretary-treasurer.

AMERICAN BOARD OF PEDIATRICS, Inc.

BORDEN S. VEEDER, President, St. Louis.
HENRY F. HELMHOLZ, Vice President, Rochester, Minn.
C. ANDERSON ALDRICH, Secretary-Treasurer, 723 Elm St., Winnetka, Ill.
HORTON CASPARIS, Nashville, Tenn.
FRANKLIN PAUL GENGENBACH, Denver.
EDWARD BYER SHAW, San Francisco.
HAROLD COE STUART, Boston.
PHILIP VAN INGEN, New York.
ALFRED AUGUSTUS WALKER, Birmingham, Ala.

ORIGIN

The American Board of Pediatrics was established in June 1933 by joint action of the American Pediatric Society, the American Academy of Pediatrics and the Section on Pediatrics of the American Medical Association after consideration of the report of a committee on pediatrics as a special field of medical practice. The committee recommended that the certification plan adopted and in use in the fields of ophthalmology, otolaryngology, gynecology and obstetrics, and dermatology be adapted to pediatrics. Similar boards have been subsequently formed in all the other special fields.

In order to correlate the activities of the various qualifying boards there has been formed the Advisory Board on Medical Specialties, composed of representatives of all the qualifying boards, including the American Board of Pediatrics, as well as representatives of the Association of American Medical Colleges, the National Board of Medical Examiners, the Federation of State Medical Boards of the U. S. A. and the American Hospital Association.

Any method of certification in any specialty must be national in scope, must in its ultimate analysis be controlled by the men in each special field and must be independent of society membership or affiliation. The American Board of Pediatrics fulfils these three essentials: A uniform standard of competency is set up, the character of which is assured through the affiliation with the Advisory Board on Medical Specialties; the board is controlled by pediatricians, its membership being composed of three men appointed by each of the three national pediatric societies; the board is not a medical society, however, and certification is independent of society affiliation.

FUNCTION

The functions of the board are outlined in the articles of incorporation as follows:

"To encourage the study, improve the practice and elevate the standards of pediatrics; and to grant and issue to physicians, duly licensed by law, certificates or other equivalent recognition of special knowledge in pediatrics."

The board has interpreted this to mean that its efforts to encourage and improve the practice of pediatrics shall be limited to its function of certification of competency in the specialty. Obviously other organizations are better able to further the general improvements in pediatrics.

The board specifically defines its activities as follows:

1. To establish standards by which the competency of men to practice pediatrics may be estimated.

2. To arrange, control and conduct examinations to test the qualifications of those desiring certification as pediatricians.

3. To grant certificates of qualification to those applicants who meet the standards successfully.

The board further feels that in carrying out these activities it is merely acting as the agent of the three societies which appointed its members and initiated the project.

No financial recompense of any kind is made to any member of this board except to cover actual traveling expenses to meetings and examinations. The $30 fee is fixed below that of any of the similar examining boards of other specialties. In the light of experience of the existing boards it may later be necessary to raise this fee to carry on the work of the board successfully.

CERTIFICATE—NOT A DEGREE

Certificates granted are in no sense degrees, nor do they purport to confer upon any person any legal qualification, privilege or license to practice pediatrics. Neither does the board intend in any way to limit the activities of any licensed physicians. It is merely attempting to standardize qualifications and to issue certificates to those who voluntarily comply with the requirements.

VALUE OF THE CERTIFICATE

It is anticipated that the certificate will become of value in that both the medical and lay public, including hospital directors, will soon utilize the certificate from this board as a means of discriminating between those who are well grounded as pediatricians and those who are not.

A certificate is required as one of the qualifications for new members of the American Academy of Pediatrics. The certificate of the American Board of Pediatrics is recognized by the Council on Medical Education of the American Medical Association. Holders of certificates are so designated in the directory of the American Medical Association.

Lists of those holding certificates will be published by this board from time to time. Such lists will also be published in the leading pediatric journals of the country.

APPLICANTS FOR CERTIFICATES

Requirements for Applicants.—Each applicant for a certificate must establish in a manner satisfactory to the board that,

he is of high ethical and professional standing,

is a graduate of a medical school which is satisfactory to the board, and

has received adequate training in pediatrics as a specialty, in addition to passing the examination given by this board.

Applicants will be divided into two classes, according to the length of time they have been engaged in the specialty.

Following is the classification of applicants for certification. The changes are based upon the experience gained from examination and upon the general requirements as adopted by the Advisory Board of Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association.

Group I.—Physicians who have specialized in pediatrics for ten years or more. After July 1, 1943, Group I will be abolished.

The minimum requirements for *Group II* are as follows: Graduate of a Class A medical school.

One year's intern service in a recognized hospital.

Two years' service in a pediatric center.*

An additional term of two years of specialized study and/or practice.

The board defines service in a pediatric center as full time devoted to rounded experience in an acceptable hospital or a graduate course, which includes ward and outpatient service and both therapeutic and preventive pediatrics. The time served in pediatric centers need not be continuous or spent in the same institution. In the case of a post-graduate course an academic year will meet the requirement of one year's work.

The application fee is $30 and must be remitted with the application. Refund will be made only if the applicant is refused examination. The applicant who has failed in an examination will not be required to pay a second fee if he takes another examination after the lapse of two years.

Application must be made on special blanks which may be secured from the secretary. These must be sent to the secretary at least four months before the date at which the candidate expects to take the examinations.

Letters from two competent pediatricians recommending each applicant must be sent to the secretary of the board. These letters are not to accompany the application, but should be sent directly to the secretary. No member of the board may recommend any applicant.

INFORMATION CONCERNING EXAMINATIONS

Examinations will be held at or near the time and place of meetings of the American Medical Association and of the American Academy of Pediatrics, or at other times and places at the discretion of the board, depending on the number of applicants from any region of the country. It is proposed to arrange examinations in different cities so that as little financial burden as possible will be placed upon the applicants in meeting the examiners.

The purpose of these examinations is to determine the applicant's competency to practice pediatrics. This board feels that the best impression of an applicant's ability can be obtained by oral examination although written ones may be substituted at times. It is not proposed at the present time to require the applicant to send in case reports. The board feels that growth and development are fundamental parts of pediatric training.†

A list of papers or books published must be sent with the application blank.

Further information as to the scope of the examinations will be published as soon as available. It should be emphasized that competency in the practice rather than in the theory of pediatrics is required.

Communications should be addressed to the secretary.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, Inc.

H. DOUGLAS SINGER, President, Chicago.
C. MACFIE CAMPBELL, Vice President, Boston.
WALTER FREEMAN, Secretary-Treasurer, 1028 Connecticut Ave., N. W., Washington, D. C.
LOUIS CASAMAJOR, New York City.
FRANKLIN G. EBAUGH, Denver.
HANS H. REESE, Madison, Wis.
TITUS H. HARRIS, Galveston, Texas.
NOLAN D. LEWIS, New York City.
EDWARD A. STRECKER, Philadelphia.
HENRY W. WOLTMAN, Rochester, Minn.
TRACY J. PUTNAM, New York.
LLOYD H. ZIEGLER, Wauwatosa, Wis.

HISTORY AND STATEMENT OF PRINCIPLES

The American Board of Psychiatry and Neurology was founded in 1934 following conferences of committees appointed by the American Psychiatric Association, the American Neurological Association, and the Section on Nervous and Mental Diseases of the American Medical Association. This action was taken in response to a widespread desire among specialists in psychiatry and neurology for some means of distinguishing the fully qualified specialist from the would-be specialist of inferior training and inadequate experience. That this desire is by no means limited to those who practice psychiatry and neurology is indicated by the formation of corresponding boards covering internal medicine, surgery, and the major specialties. The success of this method of distinguishing the specialists is indicated by the increasing number of candidates taking the examinations, and by the listing accorded in the American Medical Directory to those specialists holding the certificates of the various boards.

CONSTITUTION AND ACTIVITIES

The American Board of Psychiatry and Neurology is composed of twelve members, four each from the American Neurological Association and from the American Psychiatric Association and two neurologists and two psychiatrists elected by the Section on Nervous and Mental Diseases of the American Medical Association. Annual elections to fill the places of members whose terms have expired take place in each of the nominating associations with the understanding that neurology and psychiatry are always equally represented on the board. The board holds annual meetings in December of each year for the transaction of whatever business may come before it and also holds special meetings for the purpose of examining candidates and of passing upon the qualifications of those seeking the certificate without examination.

FUNCTIONS

(a) To determine the competence of specialists in psychiatry and neurology.

(b) To arrange, control and conduct investigations and examinations to test the qualifications of voluntary candidates for certificates issued by the Board.

(c) To grant and issue certificates or other recognition of special knowledge in the field of psychiatry and neurology to successful voluntary applicants therefor.

(d) To serve the public, physicians, hospitals and medical schools by preparing lists of practitioners who shall have been certified by the Board.

(e) To consider and advise as to any course of study and technical training, and to diffuse any information calculated to promote and ensure the fitness of persons desirous of qualifying for a certificate of qualification to be issued thereby.

INFORMATION FOR APPLICANTS

EXCERPTS FROM ARTICLE VII OF THE BY-LAWS

SECTION 1. *Application for Certificates.* Application for certificates shall be considered by the secretary only when made formally on the official application blank in such form as may be adopted from time to time by the board of directors and when accompanied by an application fee in such amount as may be fixed from time to time by the board of directors.

SECTION 2. *Form of Certificates.* There shall be separate certification in psychiatry and in neurology and two certifications or a combined certification for those qualified in both fields. The certificates shall be in such form as is approved by the board of directors.

SECTION 3. *Requirements for Applicants.* Each applicant for a certificate must establish that—

(a) He is a physician duly licensed by law to practice medicine.

(b) He is of satisfactory ethical and professional standing.

(c) He is now a member of the American Medical Association, or a member of such medical societies as are recognized for purposes of certification by the Council on Medical Education and Hospitals of the American Medical Association.

(d) He has received adequate training in psychiatry or neurology, or both, as a specialty.

SECTION 4. No candidate is eligible for examination by the Board until he has completed at least five years of special training and experience in neurology or psychiatry for a single certificate, or at least six years of training and experience for certification in both neurology and psychiatry.

CLASSES OF APPLICANTS AND FEES

Applicants may request certification in psychiatry, or in neurology, or in both psychiatry and neurology.

Limitation of practice to the specialty of psychiatry and/or neurology need not be complete provided a candidate both by his previous training, experience and standing, and by examination, can prove his competency to practice that specialty.

However, in case a physician has already been certified by one of the other boards as a specialist in another field, he will not be considered for certification in psychiatry and/or neurology.

Class I

Physicians who graduated from medical school in 1919 or before and who have carried on specialized practice in neurology and/or psychiatry for at least fifteen years are to be

* A maximum of six months of this time may be spent in full time contagious work in a recognized hospital.

† The three volumes on Growth and Development of the White House Conference contain this material. Century Company, publishers.

considered on their professional record and passed, if satisfactory to the Board, or further evidence of qualification or examination may be required.

A candidate in Class I who has received certification in either psychiatry or neurology may apply within three years for certification in the other field without additional fee. After three years such application shall be considered as a new application with corresponding fees.

When certification in Class I has been refused, the candidate may file application for reconsideration within three years without additional fee. After three years such application for reconsideration shall be considered as a new application with corresponding fees.

Class II

Physicians who graduated from medical school up to and including 1929 and who have practiced the specialty of psychiatry and/or neurology for at least five years will be required to pass an examination in psychiatry or neurology, or both.

Class III

Physicians who graduated after 1929, up to and including 1934, will be required to pass an examination to satisfy the Board that they have adequate knowledge of all subjects specified in the by-laws for candidates graduating after 1934. Their previous training and experience must be acceptable to the Board.

Class IV

Candidates graduating from medical school after 1934 shall fulfil the preceding general requirements as given in Section 3 of Article VII and the following special requirements:

PROFESSIONAL EDUCATION

(1) Graduation from a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association.

(2) Completion of a general interneship of not less than one year in a hospital approved by the same Council.

SPECIAL TRAINING

(These requirements are to be placed in force as soon as practicable after Jan. 1, 1940. In the meantime a syllabus covering the knowledge required of the candidate has been prepared and is available to those who request it.)

Admission to the examination for certification in neurology or psychiatry requires a total experience of not less than five years. This period shall include the following:

1. A period of study, after the general internship, of not less than three full years in institutes, hospitals, clinics, dispensaries, laboratories, and other institutions recognized by the Council of the American Medical Association and approved by the American Board of Psychiatry and Neurology as competent to provide a satisfactory training in psychiatry and/or neurology.

(a) As subject matter,

Neuro-anatomy	Psychobiology
Neurophysiology	Psychopathology
Neuropathology	Neuroroentgenology
Clinical neurology	Clinical psychiatry

and other basic medical sciences, which, in the opinion of this board, are necessary to the proper understanding and treatment of psychiatric and/or neurologic disorders.

2. An additional period of not less than two years of practice in psychiatry and/or neurology.

3. Candidates wishing to be admitted to the examinations for certification in both fields must have had a minimum of six years of experience in both fields.

PAYMENT OF FEES

The candidate on filing his application shall accompany it with an application fee of $25. When notified by the Secretary that he is eligible for examination he shall send the examination fee of $25 to the secretary at least two weeks before the date of the examination. The certification fee of $25 is payable upon notification by the Board that certification has been awarded the candidate in Class I on his record. No fees will be returned.

The same examination is given whether a candidate applies for certification in psychiatry, or in neurology, or in both psychiatry and neurology. The Board requires some proficiency in neurology on the part of those it certifies in psychiatry and vice versa, but judges the candidate in accordance with the certificate he seeks.

Should a candidate receive certification in either psychiatry or neurology, he may apply within three years for partial examination for the certificate in the complementary subject, upon payment of a complementary examination fee of $10. After three years, the second application shall be considered a new application, with corresponding $25 fees.

EXAMINATIONS

Date and places of examination are set by the Board at its discretion and are announced in *The Journal of the American Medical Association*, in the *American Journal of Psychiatry*, in the *Journal of Nervous and Mental Disease*, and in the *Archives of Neurology and Psychiatry*.

The examinations are designed to test the ability of the candidates to meet the situations in which they might at any time be called upon as specialists to assume responsibility. They will be of such a type that no adequately trained individual will fail, yet they will be sufficiently searching so that the specialist-in-fact will be separated from the specialist-in-name. Each candidate is required to identify and to discuss the function of the more important anatomic structures in the brain and spinal cord, to discuss gross and microscopic pathologic specimens and to interpret roentgenograms dealing with neurologic disorders. He is examined orally on the subjects of psychobiology and psychopathology. These examinations in the preclinical subjects usually last about two hours. Each candidate examines two patients with neurologic disorders and two with psychiatric disorders, and discusses with the examiners the various problems involved. One hour, on the average, is allotted to each of these four clinical examinations. The manner of examining both neurologic and psychiatric patients and the reasoning and deductions therefrom constitute the most important part of the examination. Some acquaintance with the history of psychiatry and neurology, with the body of doctrine, and with the recent advances, is presupposed.

REEXAMINATIONS

A candidate who has failed in one examination is eligible to reexamination in the whole subject, within three years, on payment of a reexamination fee of $10. A candidate who has failed in one examination and who does not apply for reexamination within three years or a person who has applied within that time but who has failed a second time will be considered a new applicant, with corresponding $25 fees. The $10 reexamination fee also applies to candidates conditioned in one or more subjects at any time within three years of the first examination, and is payable before each reexamination.

HANDLING OF APPLICATIONS

An application, in order to be considered at any meeting, must be in the hands of the secretary of the board not less than seventy days before the date of such meeting.

The secretary of the Board on receipt of an application shall forthwith make inquiries from those to whom the candidate refers and from such other persons as the secretary may deem desirable and shall verify the candidate's record from the biographical records of the American Medical Association, after which he shall forward the application to the committee on credentials. This committee shall consider the application and other information available and notify the secretary whether the application is accepted. The certification of a candidate in either psychiatry or neurology, or both, shall be approved by a majority of the members of the entire Board at any meeting held for such certification.

PLEDGE

Each candidate is required to sign the following pledge:

"I hereby make application to the American Board of Psychiatry and Neurology, Incorporated, for the issuance to me of a certificate of qualification as a specialist in (a) Psychiatry; (b) Neurology; (c) Psychiatry and Neurology (check the one desired) and for examination relative thereto, all in accordance with and subject to its rules and regulations. Upon the issuance of the certificate I agree to and do become bound by the by-laws of the American Board of Psychiatry and Neurology, Inc., insofar as applicable.

"I agree to disqualification from examination or from the issuance of a certificate of qualification or to forfeiture and redelivery of such certificate of qualification in the event that any of the rules governing such examination are violated by me or for any one of the reasons set forth in the by-laws. I agree to hold said American Board of Psychiatry and Neurology, Inc., its members, examiners, officers and agents, free from any damage or claim for damage or complaint by reason of any action they, or any of them, may take in connection with this application, such examination, the grade or grades given with respect to any examination, and/or the failure of said corporation to issue to me such certificate of qualification."

RULES AND REGULATIONS

(ART. VII, SEC. 5, OF THE BY-LAWS)

The board of directors, from time to time, by resolution adopted by the affirmative vote of a majority then in office, may adopt, amend and repeal rules and regulations respecting requirements of applicants, the nature and extent of examinations and investigations and issuance of certificates.

REVOCATION OF CERTIFICATES
(ART. VII, SEC. 6, OF THE BY-LAWS)

All certificates issued by the corporation shall be issued subject to the provisions of the certificate of incorporation and of the by-laws of the American Board of Psychiatry and Neurology, Inc. Each such certificate shall be subject to revocation in the event that:

(a) The issuance of such certificate or its receipt by the physician shall have been contrary to or in violation of any of the provisions of the corporation's certificate of incorporation or by-laws; or

(b) The physician so certified shall not have been eligible in fact to receive such certificate, irrespective of whether or not the facts constituting him so ineligible were known to any or all of the directors of the corporation or could have been ascertained by any or all of the directors of the corporation at the time of the issuance of such certificate; or

(c) The physician so certified shall have made any deliberate misstatement of fact in his application for such certificate or in any other statement or representation to the corporation, its directors, representatives or agents; or

(d) The physician so certified shall have been convicted by a court of competent jurisdiction of a felony or of any misdemeanor involving, in the opinion of the board of directors of the corporation, moral turpitude in connection with his practice of medicine; or

(e) The physician so certified shall have had his license to practice medicine revoked or shall have been disciplined or censored as a physician by any court or other body having proper jurisdiction and authority.

FORM OF CERTIFICATE

The secretary shall have prepared subject to the approval of the board members a form of certificate containing the following wording:

THE AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC.

This is to certify that.....has satisfied the requirements of the board and is hereby certified as qualified to practice the specialty of Psychiatry and/or Neurology.

(Signed) President.....
Vice President.....
Secretary .....

Communications should be addressed to the secretary.

AMERICAN BOARD OF RADIOLOGY, Inc.

A. C. CHRISTIE, President, Washington, D. C.
G. W. HOLMES, Vice President, Boston.
BYRL R. KIRKLIN, Secretary-Treasurer, 102 Second Avenue, S.W., Rochester, Minn.
E. C. ERNST, St. Louis.
E. L. JENKINSON, Chicago.
L. C. KINNEY, San Diego, Calif.
J. W. PIERSON, Baltimore.
U. V. PORTMANN, Cleveland.
DOUGLAS QUICK, New York.
L. R. SANTE, St. Louis.
E. H. SKINNER, Kansas City.
ALBERT SOILAND, Los Angeles.
M. C. SOSMAN, Boston.
R. H. STEVENS, Detroit.
B. P. WIDMANN, Philadelphia.

HISTORY AND AUTHORITY FOR ORGANIZATION

The medical profession has long felt that there should be a standard of minimal requirements for the practice of any specialty in medicine in order to protect the public, the profession in general, and the specialists themselves. Some of the states have attempted by statute to prescribe such requirements in certain branches. Unless a better method of regulation were found, the other states would be likely to enact similar laws. The result would be forty-eight different standards for each of the many medical specialties. Obviously, a more practicable solution would be for each special group to put its own house in order and place its mark of approval on those qualified to practice as specialists in that particular field. Accordingly, in 1932, five nation-wide radiologic organizations, the Section on Radiology of the American Medical Association, the American Roentgen Ray Society, the Radiological Society of North America, the American College of Radiology, and the American Radium Society, each appointed a committee of three members to confer and investigate the feasibility of establishing a qualifying board. The following men were appointed by these five organizations: Drs. G. W. Holmes, J. W. Pierson, E. L. Jenkinson, W. E. Chamberlain, E. C. Ernst, W. F. Manges, L. R. Sante, L. C. Kinney, A. C. Christie, Albert Soiland, W. W. Wasson, Henry Schmitz, Lester Hollander, Rollin H. Stevens and B. R. Kirklin.

This combined committee met at Milwaukee in 1933, during the meeting of the American Medical Association, agreed unanimously that such a board should be established and so reported to the respective organizations. Each of the organizations approved the report, appointed three representatives, and empowered them to proceed to the formation of a national radiologic board. The members of the board thus chosen were: Drs. W. F. Manges, L. R. Sante and B. R. Kirklin, representing the American Roentgen Ray Society; Drs. A. C. Christie, E. C. Ernst and E. L. Jenkinson (succeeding Dr. Byron H. Jackson, originally appointed) representing the American College of Radiology; Drs. R. H. Stevens, Henry Schmitz and H. K. Pancoast, representing the American Radium Society; Drs. L. J. Menville, M. C. Sosman and Albert Soiland, representing the Radiological Society of North America, and Drs. L. C. Kinney, J. W. Pierson and G. W. Holmes, representing the Section on Radiology of the American Medical Association.

The board was incorporated, organized and held its first meeting in Washington, D. C., in May 1934; at that time the by-laws were adopted and provision was made by resolution for its proper function. The officers of the board elected at this meeting were:

Dr. H. K. Pancoast, President.
Dr. A. C. Christie, Vice President
Dr. B. R. Kirklin, Secretary-Treasurer.

This move put into action the determined effort on the part of these five national organizations to improve the standards of the practice of radiology. It expects to accomplish this by various activities, such as the investigation and encouragement of facilities for graduate extension study and active clinical assistantships for men desiring to specialize in radiology; it will endeavor by regular examinations to determine the competence of specialists in radiology who apply for the certificate.

During 1935 the American Board of Radiology was accepted for membership in the Advisory Board for Medical Specialties and was also approved by the Council on Medical Education and Hospitals of the American Medical Association. Hereafter the list of Diplomates of the Board will take the place of the Council's list of approved radiologists, and the latter list will be discontinued.

PURPOSES

First: To encourage the study and promote and regulate the practice of radiology.

Second: To elevate the standards and advance the cause of radiology by encouraging its study and improving its practice.

Third: To determine the competence of specialists in radiology; to arrange, control and conduct investigations and examinations; and to test the qualifications of voluntary candidates for certificates to be issued by the board.

Fourth: To serve the public, physicians, hospitals and medical schools by preparing lists of practitioners who shall have been certified by the board.

VALUE OF CERTIFICATE

The national radiologic organizations which have participated in the formation of the board and are sponsoring its activities, as well as other organizations, attach considerable importance to its certificate. It is expected that both the medical and the lay public, including hospital directors, will soon come to utilize the certificate from this board as a means of discriminating between those who are well grounded as specialists in radiology and those who are not.

To this end lists of those holding certificates from this board will be published and issued from time to time by the board. Similar lists will be published by the *American Journal of Roentgenology and Radium Therapy, Radiology,* and *The Journal of the American Medical Association.* The Directory of the American Medical Association will indicate by a numerical symbol in the biographic data of those whose names are eligible to appear on these lists that they are diplomates of this board.

For emphasis it is repeated that the board does not intend in any way to interfere with or limit the professional activities of any duly licensed physician, but it does aim toward standardized qualifications for those who claim to be specialists in radiology.

CERTIFICATES

A certificate will be issued to each candidate who meets the requirements of the board, to the effect that the holder of the certificate has had adequate training in radiology and has successfully fulfilled the requirements of the board.

A certificate granted by this board does not of itself confer, or purport to confer, any degree, or legal qualifications, privileges, or license to practice radiology. Certificates of the board shall be issued upon one of two forms:

1. A certificate to the effect that the applicant has been found qualified to practice radiology in all its branches.

2. A certificate to the effect that the applicant has been found qualified to practice radiology in one or more of the following special fields: (a) roentgenology; (b) diagnostic roentgenology; (c) therapeutic radiology.

DEFINITIONS

For the purposes of this board, the following definitions are adopted:

1. Radiology is that branch of medicine which deals with the diagnostic and therapeutic application of radiant energy including roentgen rays and radium.

2. Roentgenology is that branch of radiology which deals with diagnostic and therapeutic application of roentgen rays.

3. Diagnostic roentgenology is that branch of radiology which deals with the diagnostic application of roentgen rays.

4. Therapeutic radiology is that branch of radiology which deals with the therapeutic application of roentgen rays and radium.

GENERAL REQUIREMENTS

Each applicant for admission to the examination shall be required to present evidence that he has met the following standards:

(A) General Qualifications.*

(1) Satisfactory moral and ethical standing in the profession.

(2) A license to practice medicine.

(3) Membership in the American Medical Association, or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association.

(4) That the applicant holds himself out to be a specialist in radiology or one of its branches as defined under definitions, and that he uses roentgen rays or roentgen rays and radium either personally or under his direct supervision in a substantial portion of his practice.

(B) Professional Education.*

(1) Graduation from a medical school of the United States or Canada, recognized by the Council on Medical Education and Hospitals of the American Medical Association.

(2) Completion of an internship of not less than one year in a hospital approved by the same council.

(3) Three years' training in radiology or sufficient experience in lieu thereof.

(C) Special Training.* (To be effective Jan. 1, 1942.)

(1) A period of study after the internship of not less than three calendar years in an institution or radiologic department recognized by the same council and the board as competent to provide a satisfactory training in the field of radiology.

(2) This period of specialized preparation shall include:

(a) Graduate training in pathologic anatomy, radiophysics, and radiobiology.

(b) An active experience of not less than twenty-four months in a radiologic department recognized by the board and the council as capable of providing satisfactory training.

(c) Examination in the basic sciences of radiology as well as in the clinical aspects thereof.

APPLICATIONS

The board desires to appraise the candidate's educational opportunities (premedical, medical and radiologic), the ability of his instructors, his hospital and teaching positions, his original investigations, his contributions to radiologic literature, his membership in medical societies, and his local and general reputation.

For this purpose, application must be made on a special blank which may be obtained from the secretary. No application will be considered unless made on the regular application blank. This application shall be forwarded with the required data, two unmounted photographs, and the fee of $35, at least two months before the date of the examination.

* NOTE: In case of an applicant whose training has been received outside of the United States and Canada, the credentials must be satisfactory to the Advisory Board for Medical Specialties.

FEE

A fee of $35 must accompany each application blank. This fee will not be returned and no application will be considered until the fee is received. This fee has been carefully computed and is used entirely for administrative purposes. Members of the board and special examiners do not receive any compensation except for actual expenses connected with holding the examinations. As the number of candidates decreases, it may become necessary to raise the fee.

Checks should be made payable to the American Board of Radiology.

EXAMINATIONS

Each year the board will hold an examination in conjunction with the annual meeting of the American Medical Association, and, when sufficient applications are on file, a second examination will be held in conjunction with the annual meeting of the American Roentgen Ray Society and/or the Radiological Society of North America.

For the present, examinations consist of practical and oral examinations, although written examinations may be added later. The examinations are designed to test the candidate's fitness to practice radiology or one of its branches as a specialty. The board will endeavor to adapt this examination to the candidate's experience and years of practice. It will try especially to ascertain the breadth of his clinical experience, his knowledge of the basic sciences of radiology, and likewise his knowledge of the recent literature on radiology, and his general qualifications as a specialist in this branch of medicine.

The examination consists of tests in film interpretation and an oral examination in pathology, physiology, radiophysics and radiobiology, as well as the clinical applications of roentgen rays and radium. The applicant is also examined in "professional adaptability," in an attempt to ascertain his attitude toward his fellow practitioners and his patients.

Whenever an applicant fails to pass the examination, the board, if requested, will make suggestions as to suitable courses of instruction for the purpose of overcoming his deficiencies.

REEXAMINATIONS

If the candidate fails in an examination he will be admitted to a second examination after one year has elapsed but not more than three years. He must give sixty days' notice of his intention to appear for reexamination and pay an additional fee of $15. If a candidate who has failed does not appear for reexamination before the expiration of three years, he will be required to make a new application and pay an additional fee of $35.

A candidate having failed twice must file a new application and pay an additional fee of $35.

FINAL ACTION OF THE BOARD

The final action of the board is based on the applicant's professional record, training, and attainments in the field of radiology, as well as on the results of his examination. Any radiologist who is practicing radiology honorably and efficiently should have no difficulty in obtaining a certificate. This board has been organized, not to prevent qualified radiologists from obtaining certificates, but to assist them in becoming recognized in their communities as men competent to practice in the special field of radiology.

REVOCATION OF CERTIFICATES

Certificates issued by this board are subject to the provisions of the Articles of Incorporation and the By-Laws. According to Article IX, Section 4, of the By-Laws "Any certificate issued by the Board of Trustees shall be subject to revocation in the event that:

(a) The issuance of such certificate or its receipt by the physician so certified shall have been contrary to or in violation of any provision of the Certificate of Incorporation of this the American Board of Radiology or of these by-laws; or

(b) The physician or party so certified shall not have been eligible in fact to receive such certificate; or

(c) The physician or party so certified shall have made any mis-statement of fact in his application or in any other communication to the board or its representatives; or

(d) The physician or party so certified shall have been convicted by a court of competent jurisdiction of a felony or of any misdemeanor involving, in the opinion of the Board of Trustees, moral turpitude; or

(e) If the physician or party so certified shall have had his license to practice medicine revoked or shall have been expelled

from one of the societies or organizations which is represented by this corporation through eligibility of such society or organization to nominate and appoint members of this corporation."

Communications should be addressed to the secretary.

AMERICAN BOARD OF SURGERY, Inc.

EVARTS A. GRAHAM, Chairman, St. Louis.
ALLEN O. WHIPPLE, Vice Chairman, New York.
J. STEWART RODMAN, Secretary-Treasurer, 225 South Fifteenth St., Philadelphia.
HOWARD M. CLUTE, Boston.
ARTHUR W. ELTING, Albany, N. Y.
DONALD GUTHRIE, Sayre, Pa.
THOMAS M. JOYCE, Portland, Ore.
THOMAS G. ORR, Kansas City, Kan.
ROBERT L. PAYNE, Norfolk, Va.
FRED W. RANKIN, Lexington, Ky.
ERWIN R. SCHMIDT, Madison, Wis.
HARVEY B. STONE, Baltimore.
PHILEMON E. TRUESDALE, Fall River, Mass.

HISTORY

The organization of the American Board of Surgery was completed on Jan. 9, 1937. A plan for this organization had been carefully studied by a general committee representative of certain general and sectional surgical societies called together through the initiative of the American Surgical Association. As a result of the deliberations of this general committee a tentative plan of organization was adopted. This plan was reported to the cooperating surgical societies and was approved with the understanding that the board, when organized, would have the power to change or modify the proposed plan as it saw fit. This board has been created in accordance with the action of the Advisory Board for Medical Specialties as approved by the Council on Medical Education of the A. M. A., which has named twelve specialty fields as being suitable to be represented by such boards. These boards have the two-fold purpose of certifying those found to be qualified after meeting reasonable requirements, and of improving existing opportunities for the training of specialists within the field concerned. This is to be done for the protection of the public and the good of the specialty.

PERSONNEL

* The cooperating surgical societies selected jointly to form the board appointed their representatives as follows:

The American Surgical Association	3
The Surgical Section of the A. M. A.	3
The American College of Surgeons	3
The Southern Surgical Association	1
The Western Surgical Association	1
The Pacific Coast Surgical Association	1
The New England Surgical Society	1
	13

The term of membership is for six years. Each cooperating association has the appointing power of its representatives subject to the approval of the board.

PURPOSES

(a) To conduct examinations of satisfactory candidates who seek qualification by the Board.

(b) To issue certificates of qualifications to all those meeting the Board's requirements.

(c) To improve the opportunities for the training of the surgeon.

REQUIREMENTS

(A) GENERAL QUALIFICATIONS

1. Moral and ethical standing in the profession satisfactory to the Board.

The Board, believing that the practice of "fee splitting" is pernicious, leading as it does to a traffic in human life, will reserve the right to inquire particularly into any candidate's practice in regard to this question.

2. Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the A. M. A. Except as here provided, membership in other societies shall not be required.

3. Those who have limited their activities to the practice of surgery.

4. In exceptional instances the Board may, in its discretion, accept for examination candidates who have met all preliminary requirements and have been in practice from six to sixteen years but whose formal training does not comply with the full requirements to be exacted in the future.

The Board recognizes two groups of candidates who may be eligible for certification.

(A) The Founders Group—those who have already amply demonstrated their fitness as trained specialists in surgery. Candidates from this group on invitation by the Board may make application and upon approval by the Board will be accepted without examination as qualified. This group will be selected from the following:

1. Those who from the time of the Board's organization, January 9, 1937, hold the position of Professor or Associate Professor of Surgery in the approved medical schools of the United States or Canada.

2. Those who for fifteen years prior to the Board's organization have limited their practice to surgery and have met the general qualifications required.

3. Such members of the cooperating societies represented on the Board, in good standing January 9, 1937, who may be invited to membership in this group.

(B) Qualified by examinations—

In addition to the general qualifications the requirements for this group shall be as follows:

(B) PROFESSIONAL STANDING

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the A. M. A., or graduation from an approved foreign school.

2. Completion of an internship of not less than one year in a hospital approved by the same Council, or its equivalent in the opinion of the Board. This internship may be rotating or one devoted to a single branch of medicine as, for example, surgery, medicine, pathology, etc.

(C) SPECIAL TRAINING

After the completion of the year's internship there shall be a period of special training in surgery of not less than five years. During this period one's entire time must be devoted to surgical training supplemented by sufficient experience in the basic sciences to comply with the provisions of Paragraph 2. Such training may be taken in a recognized graduate school of medicine, or as resident in surgery in an acceptable hospital, or under a sponsorship accredited by the American Board of Surgery for such training. By the latter statement is meant that one may secure the necessary training as an assistant to an accredited surgeon, provided suitable facilities for the education of the candidate are offered. It is understood that the Board will accept a combination of training as outlined above—

For example, one may take a graduate course in an acceptable graduate school for one year, a residency of two years, and an assistantship of two years.

This period of special training shall be of such character that the relation of the basic sciences of anatomy, physiology, pathology, bacteriology and biochemistry is emphasized. Knowledge of these sciences as applied to clinical surgery will be required in the examination.

Adequate operative experience in which the candidate has assumed the whole responsibility will be required.

The above requirements, especially those referring to surgical training, are subject to change from time to time as the existing opportunities for training in this field of specialization may be broadened.

EXAMINATIONS

The qualifying examination will be divided into Part I (written) and Part II (clinical, bedside and laboratory). In both of these parts a knowledge of the practical application of the sciences fundamental to surgery will be required as previously stated.

PART I

This may be given simultaneously in as many centers as the Board may determine suitable for the purpose. A candidate, to be eligible for Part I, must meet all requirements for Group B

* The first three of these associations being national in scope, were allotted three representatives each, the remaining associations, one.

candidates. A card of admission to this part of the examination will be forwarded to the candidate from the Secretary's office, certifying that these requirements have been met, as well as due notice as to the time and place of examination.

The examination in Part I shall cover a one day period. There shall be two sessions of three hours each. This written examination shall concern itself primarily with general surgical problems and in addition the application of the basic sciences of surgery to these problems.

PART II

In order to be eligible for Part II a candidate must have successfully passed Part I, in addition to having met the necessary preliminary requirements and having presented definite evidence of an adequate training in operative surgery satisfactory to the Board.

This Part of the examination shall be oral and practical and cover a two day period, the schedule being arranged somewhat as follows:

FIRST DAY

8-9 A. M.—Registration.

9 A. M.-1 P. M.—Clinical Surgery (diagnosis and management).

2-5 P. M.—Surgical Pathology, clinical application of Physiology, Biochemistry and Bacteriology to Surgery, x-ray plate interpretation, Anesthesia.

SECOND DAY

9 A. M.-1 P. M.—Operative Surgery.

2-5 P. M.—Special Examinations (reexaminations when necessary).

It is probable that for the present this Part of the examination can be held in one center or at the most, two. Later, however, as the demand grows, it will be necessary, in all probability, for the Board to establish definite subsidiary board centers where this Part may be held. At that time it will be necessary that the Board appoint subsidiary boards in these centers, consisting of those already qualified as in Group A, to conduct this examination.

GRADES

A candidate must receive a passing average for each Part to be entitled to the Board's certificate. No candidate shall pass a Part who does not receive a grade of 60% or over in each subject of such a Part. An average grade of 75% shall be considered as passing in each Part.

A candidate who fails in his examination in Part I shall have his papers reviewed by the Examination Committee.

REEXAMINATIONS

Candidates may be reexamined as often as they desire provided one year shall elapse between examinations, except that the Board may, for good and sufficient reason, deny a candidate the privilege of reexamination.

Candidates shall be required to pay the same fees for Parts I and II at each reexamination in these Parts.

FEES

The fee for Group A, Founders Group, shall be $25.

The fee for Group B shall be $75, payable as follows: $5 registration fee, which shall be returned if the candidate is not accepted for examination; $20 for Part I; and $50 for Part II.

This Board is a non-profit organization. All fees will be used, after a reasonable amount is set aside for necessary expenses in maintaining its office, conducting examinations, etc., to aid in improving existing opportunities for the training of the surgeon.

CERTIFICATE

A certificate attesting to a candidate's qualification in surgery after meeting the requirements will be issued by the Board, having been signed by its officers.

REVOCATION OF CERTIFICATE

Any certificate issued by the Board shall be subject to revocation by the Board at any time in case it shall determine in its sole judgment that a candidate who has received a certificate either was not properly qualified to receive it or has become disqualified since its receipt.

Proper forms for making application, and other information, will be furnished by the secretary.

AMERICAN BOARD OF UROLOGY, Inc.

HERMAN L. KRETSCHMER, President, Chicago.
CLARENCE G. BANDLER, Vice President, New York.
GILBERT J. THOMAS, Secretary-Treasurer, 1009 Nicollet Avenue, Minneapolis.
NATHANIEL P. RATHBUN, Brooklyn.
GEORGE GILBERT SMITH, Boston.
WILLIAM F. BRAASCH, Rochester, Minn.
HENRY G. BUGBEE, New York.
ALFRED I. FOLSOM, Dallas.
T. LEON HOWARD, Denver.

ORGANIZATION

At the annual meeting of the American Association of Genito-Urinary Surgeons held at Niagara Falls, Ont., Canada, May 26-28, 1932, Dr. William F. Braasch called attention to the various qualification boards which had been established, or were in the process of being established, for the certification of specialists. He suggested that a committee should be appointed from this organization to investigate the advisability of establishing a similar board for the specialty of urology. A committee consisting of Dr. Braasch as Chairman, Dr. Henry G. Bugbee, and Dr. Hugh H. Young was appointed. This committee reported to the society in 1933, was reappointed to continue its efforts, and was given the power to act.

At the meeting of the American Urological Association in 1933, Dr. George R. Livermore, in his presidential address, suggested that all candidates for specialization in urology should have some definite preparation, and should be required to take a thorough examination before being recognized as specialists in urology. Dr. Livermore appointed Dr. Joseph F. McCarthy, chairman; Dr. George Gilbert Smith, and Dr. Herman L. Kretschmer as a committee to study this suggestion.

At the annual meeting of the American Medical Association in Milwaukee, June 12-16, 1933, a committee consisting of Dr. Montague L. Boyd, chairman; Dr. A. I. Folsom and Dr. Frank Hinman was appointed to cooperate with similar committees from the American Association of Genito-Urinary Surgeons and the American Urological Association in the establishment of the American Board of Urology.

The first combined meeting of the committees from these three organizations was held on Oct. 11, 1933, in Chicago. Dr. Herman L. Kretschmer was made president; Dr. Joseph F. McCarthy, vice president; and Dr. William F. Braasch, secretary. These men were elected to serve as temporary officers. A permanent organization could not be effected, however, because the committee from the American Urological Association had not been given the power to act.

The second meeting of these committees was held in New York City, Feb. 2, 1934. Dr. Nathaniel P. Rathbun, president of the American Urological Association, was present at this meeting.

At the annual meeting of the American Urological Association held in Atlantic City, N. J., May 22-24, 1934, the committee reported the activities of the temporary "Board of Urology." This report, which contained suggestions for the guidance of future committees from this association, was accepted, and a new committee was elected by the association, and was given the power to act.

The permanent "American Board of Urology, Inc.," was organized at Chicago, Sept. 24, 1934. The committee members present from the American Association of Genito-Urinary Surgeons were: Dr. William F. Braasch, Dr. Henry G. Bugbee, and Dr. Gilbert J. Thomas; those from the American Urological Association were: Dr. Nathaniel P. Rathbun, Dr. Herman L. Kretschmer, and Dr. George Gilbert Smith; those from the Section on Urology of the American Medical Association were: Dr. A. I. Folsom, Dr. T. Leon Howard, and Dr. Clarence G. Bandler.

The officers of the board elected at this meeting were: Dr. Herman L. Kretschmer, president; Dr. Clarence G. Bandler, vice president; Dr. Gilbert J. Thomas, secretary-treasurer.

The board was incorporated May 6, 1935, and held its first legal meeting May 10, 1935.

PURPOSES

The first objective of the American Board of Urology, Inc., is to render better service to the public by insuring the competence of any physician or surgeon who is specializing, or who wishes to specialize, in the field of urology. It will elevate the standards and advance the cause of urology. It will investigate the curricula of medical schools, and will encourage adequate facilities for graduate instruction in urology.

FUNCTIONS

(a) The board will arrange to control and conduct examinations testing the qualifications of volunteer candidates.

(b) The board will grant and issue certificates or other evidence of special knowledge in the field of urology to voluntary applicants or to candidates for certification.

(c) The board will endeavor to serve the public, hospitals, medical schools, medical societies and practitioners of medicine and surgery by preparing lists of urologists whom it has certified.

LIMITATIONS OF FUNCTIONS

The conferring of degrees, "Doctor of Medicine" or "Bachelor of Medicine" remains with the universities, where it belongs, and this board makes no attempt to control the practice of urology by license, or legal regulations. This board does not intend in any way to interfere with or limit the professional activities of any duly licensed physician.

REASON FOR APPLYING FOR A CERTIFICATE; ITS VALUE

The American Urological Association, the American Association of Genito-Urinary Surgeons, and the Section on Urology of the American Medical Association are interested in furthering the cause of urology and have participated in the formation of this board. They are sponsoring its activities. The various national medical societies, the public, hospital directors and others, will utilize the certification from this board as a means of discriminating between those well grounded as specialists in urology, and those who are not.

Lists of individuals who have certificates from this board, and who are engaged in the practice of urology may be published in the Directory of the American Medical Association and will be published in a booklet issued from time to time by the American Board of Urology, Inc. The directory of the American Medical Association may indicate, by symbols in the biographical data, those whose names are eligible to appear on the list of diplomates of this board.

Application for this certificate is purely voluntary. There is only one type of certificate. No indication is given as to whether or not the candidate received his certificate with or without examination. All certificates are identical.

The Advisory Board for Medical Specialties working in conjunction with, and reporting to, the Council on Medical Education and Hospitals of the American Medical Association, has set certain standards of preparation for specialization which the American Board of Urology, Inc., wishes to adopt. The advisory board has drawn from the experience of all the present functioning boards, and has been of inestimable assistance in the formulation of the Constitution and By-Laws for the Board of Urology. Other organizations which now successfully operate boards of certification are:

The American Board of Ophthalmology, the American Board of Otolaryngology, the American Board of Obstetrics and Gynecology, the American Board of Dermatology and Syphilology, the American Board of Pediatrics, the American Board of Psychiatry and Neurology, the American Board of Radiology, the American Board of Orthopedic Surgery, the American Board of Internal Medicine, the American Board of Pathology and the American Board of Surgery. Among the organizations cooperating with the Advisory Board for Medical Specialties are: the Association of American Medical Colleges, the American Hospital Association, the Federation of State Medical Boards of the U. S. A., and the National Board of Medical Examiners.

APPLICATION BLANK: REQUIREMENTS FOR ALL APPLICANTS

Application for certification must be made on a special blank. This will be provided by the secretary and must be returned to him accompanied by other required data and credentials, and by the examination fee.

Requirements for Applicants. (Article VIII, Section 2, of the By-Laws of the American Board of Urology, Inc.)

Each applicant, before he shall become eligible to take the examination for certification in urology, must:

A. Have graduated from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association, and must have completed an internship of not less than one year in a hospital approved by the same council. (The former requirement is not applicable to a candidate who graduated from an institution now extinct, or whose graduation occurred before the American Medical Association had prepared a list of accredited medical schools.) All graduates of foreign medical schools must obtain a license in the state in which they propose to practice medicine and the certificate of the National Board of Medical Examiners before making application for certification.

B. Establish in a manner satisfactory to this board that he is a physician duly licensed by law to practice medicine, that he is of high ethical and professional standing and that he has received adequate special training in urology.

The Board is attempting to increase and to standardize the facilities for urological training in teaching institutions, so that the expression "special training in Urology" may be interpreted to include:

1. A period of study, after the internship, of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the Council on Medical Education and Hospitals of the American Medical Association as competent to provide a satisfactory training in the special field of Urology.

This period of specialized preparation should include:

(*a*) graduate training in anatomy, physiology, pathology, and the other basic medical sciences which are necessary to the proper understanding of the disorders and treatment involved in the specialty of Urology.

(*b*) an active experience of not less than eighteen months in hospital clinics, dispensaries and diagnostic laboratories recognized by the Council on Medical Education and Hospitals of the American Medical Association as competent in the diagnosis and treatment of urologic conditions.

(*c*) examinations in the medical sciences basic to the specialty of Urology, as well as in the clinical, laboratory and public health aspects.

2. An additional period of not less than two years in the private practice of urology in the city from which he makes application.

These special requirements conform with the suggestions made by the Council on Medical Education and Hospitals of the American Medical Association.

C. Make application to the American Board of Urology, Inc., whose duty it shall be to investigate the applicant's credentials and make a survey of his character;

D. Assure the board that he is engaged in the practice of urology and that he intends to continue to be so engaged;

E. Membership in the American Medical Association, or comparable national medical society is recommended.

FEE

The examination fee will be $50, which is the total expense to the candidate. If a candidate fails in his examination, he will be permitted a second examination after one year, or within three years, without additional fee, but he must give sixty days' notice of his intention to appear for reexamination. After an applicant has failed twice, he must file a new application blank accompanied by a second fee. If an applicant is lacking in any of the requirements as stated above, he will be considered ineligible for examination and classification and his fee will be returned. In no other instance, however, will a refund of the examination fee be possible. The amount of the examination fee has been carefully computed and is based on the experience of other boards.

REQUIREMENTS FOR CERTIFICATION

According to the By-laws of the American Board of Urology, Inc., applications received from applicants for certification, or other recognition, shall be examined by the Credentials Committee and reviewed by the board. When additional data are required to complete the application, these will be requested by the secretary's office.

The requirements for certification include: personal appearance before the board; preparation of fifty case reports of major urological cases under the candidate's own supervision which must contain all items essential for diagnosis, therapy, prognosis, results of treatment, etc.; oral and clinical examinations; written examinations.

In specific instances, the board may waive any part of these requirements, with the exception of the item of personal appearance.

Each candidate will receive a notice of the time and place of the examinations, and an appointment for his personal appearance before the board.

EXAMINATIONS, WHERE HELD, AND REPORTS OF CASE HISTORIES

The board will attempt to hold one or more examinations per year. These will be held in association with the annual meetings of the American Urological Association or the American Medical Association, when this is practicable, or at other times and places that the board may select.

1. The written examinations are designed to test the candidate's preparation in and his knowledge of the field of urology. These examinations will not be given at the time of the oral and clinical examinations, or board sessions, but will be held at stated intervals simultaneously in different parts of the country at dates and at places convenient for candidates; adequate time will be given for correction of papers before the oral and clinical examinations are held. Written examination papers will be reviewed by examiners who reside in districts remote from those in which the candidates reside.

2. The oral and clinical examinations will consist of discussions of common urologic conditions, with appropriate pathologic specimens and histologic sections. The subjects forming the basis of the oral examinations are anatomy, embryology, physiology, pathology, urography, diseases of the genital organs, including the prostate, diseases of the urinary bladder, and diseases of the ureters and kidneys. The oral examination may deal directly with the reports of case histories which the candidate has submitted. This examination will ascertain the candidate's familiarity with recent urologic literature, the breadth of his clinical experience, and his general qualifications as a specialist in urology. The applicant also will be examined in "professional adaptability" in an attempt to ascertain his attitude toward his fellow practitioners and his patients.

3. The fifty reports of major urological cases under the candidates' own supervision should be consecutive. Those prepared by candidates who are subject to the oral examination, only, must be submitted to the secretary of the board at least sixty days before the time set for the oral examination.

Candidates who are subject to the written examination must submit their fifty reports of case histories at least sixty days before the time set for the oral examination, or at the time of the written examination.

Case reports may be abstracted, but sufficient data should appear in these so the examiner will know that a complete history was taken and that a thorough examination was made. The diagnosis made and the treatment prescribed must be justified by the facts that are elicited from the patient's history and during a complete examination. Case reports that are copied verbatim from a hospital record are not desired. They must be identified by the name of the hospital and the case admission numbers, with the pertinent dates. The reports must be typewritten and in duplicate, but need not be on any special forms. If the reports are prepared by record clerks, interns, or fellows, they should be reviewed by the candidate and careful attention given to the spelling and the correct use of medical terms.

A candidate must assume personal responsibility for his case reports. He should review them carefully before they are submitted to the secretary's office. A candidate must remember that these case reports are documentary evidence of his method of practice, and that the material in them and the manner in which it is presented reflect this.

Although the board requires that all the essential points of the history and examination be given, as well as a complete description of the surgical procedure, emphasis should be placed on the following items: preoperative diagnosis; clinical and pathological diagnosis; summary of postoperative course with special reference to morbidity; clinical findings at time of discharge from the hospital and subsequent "follow-up" reports.

A final short paragraph must be prepared for each case by the candidate. These data must include the candidate's interpretation of the history in terms of pathology; the basis for the diagnosis; the facts that determined the treatment prescribed, whether surgical or otherwise; the course of treatment to be pursued following discharge from the hospital or clinic; a critical discussion of the knowledge gained from the proper handling of the case, or from the errors made (if any) in the diagnosis and method of treatment.

Complete separate index lists of the case history reports submitted must accompany the records. If the reports are obtained from more than one hospital they must be consecutive, as mentioned before, and a separate complete list of each group of reports should be provided. These lists must state the operator's name at the head of each page, the name of the patient, the hospital and admission number, and the date of operation. The lists will be filed in the secretary's office for verification purposes.

Case reports will be reviewed by examiners living in localities other than those where the candidates practice.

FINAL ACTION

Final action is based on the applicant's training, his professional record, his attainments in the field of urology, and the results of the examinations. Any well trained urologist will have no difficulty in obtaining the board's certification. This board is organized not to prevent qualified urologists from obtaining certificates, but to assist them in becoming recognized in their communities as men competent to practice in the special field of urology.

The activities described in Articles IX and X of this pamphlet proceed from the certificate of incorporation in which is stated the nature of the business, objects, and purposes proposed to be transacted and carried out by this corporation.

REVOCATION OF CERTIFICATE

Certificates issued by this board are subject to the provisions of the Articles of Incorporation and the By-laws. According to Article IX, Section 4, of the By-laws, "each certificate may be revoked in the event that:

(a) The issuance of such certificate or its receipt by the physician so certified shall have been contrary to, or in violation of, any provision of the Certificate of Incorporation of this, the American Board of Urology, Inc., or of the By-laws; or

(b) The physician or party certified shall not have been eligible to receive such certificate, irrespective of whether or not the facts constituting him so ineligible were known to, or could have been ascertained by, the directors of the board at the time of the issuance of such certificate; or

(c) The physician or party so certified shall have made any misstatement of fact in his application for such certificate or in any other statement or representation to the board or its representatives; or

(d) The physician so certified, at any time while continuing to practice, shall cease to practice urology; or

(e) The physician so certified shall at any time have neglected to maintain the degree of competency in the practice of the specialty of urology as set up by the board, and shall refuse to submit to reexamination by the board.

The Board of Trustees of this Corporation shall have the sole power, jurisdiction and right, to determine and decide whether or not the evidence or information before it is sufficient to constitute one of the grounds for revocation of any certificate issued by this corporation, and the decision of such Board of Trustees in the premises shall be final."

Communications should be addressed to the secretary-treasurer.

ADVISORY BOARD FOR MEDICAL SPECIALTIES

Organized 1933-1934 to coordinate graduate education and certification of medical specialists in the United States and Canada.

This Board reports directly to its member groups, and functions in close cooperation with the Council on Medical Education and Hospitals of the American Medical Association and with the Advisory Council on Medical Education.

The work of this Board has been aided by grants from the Josiah Macy Jr. Foundation of New York, but the Board is now supported by its component groups.

OFFICERS AND EXECUTIVE COMMITTEE

WILLARD C. RAPPLEYE, President, New York.
W. P. WHERRY, Vice President, Omaha.
PAUL TITUS, Secretary-Treasurer, 121 South Highland Ave., Pittsburgh.
R. C. BUERKI, Chicago.
W. B. LANCASTER, Boston.

MEMBER ORGANIZATIONS AND REPRESENTATIVES

*(Corresponding Officer)

The Association of American Medical Colleges
*LOUIS B. WILSON, Rochester, Minn.
WILLARD C. RAPPLEYE, New York.

The American Hospital Association
*R. C. BUERKI, Chicago.
G. HARVEY AGNEW, Toronto, Canada.

The Federation of State Medical Boards of the U. S. A.
G. M. WILLIAMSON, Grand Forks, N. D.
*HAROLD RYPINS, Albany, N. Y.

The National Board of Medical Examiners
*J. STEWART RODMAN, Philadelphia.
WALLER S. LEATHERS, Nashville, Tenn.

The American Board of Ophthalmology
WALTER B. LANCASTER, Boston.
*JOHN GREEN, St. Louis.

The American Board of Otolaryngology
H. P. MOSHER, Boston.
*W. P. WHERRY, Omaha.

The American Board of Obstetrics and Gynecology
JOSEPH L. BAER, Chicago.
*PAUL TITUS, Pittsburgh.

The American Board of Dermatology and Syphilology
HOWARD FOX, New York.
*C. GUY LANE, Boston.

The American Board of Pediatrics
BORDEN S. VEEDER, St. Louis.
*C. ANDERSON ALDRICH, Winnetka, Ill.

The American Board of Psychiatry and Neurology
FRANKLIN G. EBAUGH, Denver.
*WALTER FREEMAN, Washington, D. C.

The American Board of Radiology
A. C. CHRISTIE, Washington, D. C.
*B. R. KIRKLIN, Rochester, Minn.

The American Board of Orthopaedic Surgery
WILLIS C. CAMPBELL, Memphis, Tenn.
*FREMONT A. CHANDLER, Chicago.

The American Board of Urology
HERMAN L. KRETSCHMER, Chicago.
*GILBERT J. THOMAS, Minneapolis.

The American Board of Internal Medicine
ERNEST E. IRONS, Chicago.
*W. S. MIDDLETON, Madison, Wis.

The American Board of Pathology
A. H. SANFORD, Rochester, Minn.
*F. W. HARTMAN, Detroit.

The American Board of Surgery
ERWIN R. SCHMIDT, Madison, Wis.
*J. STEWART RODMAN, Philadelphia.

AFFILIATES OF AMERICAN BOARD OF SURGERY

The American Board of Anesthesiology
T. D. BUCHANAN, New York.
*PAUL WOOD, New York.

The American Board of Plastic Surgery
JOHN S. DAVIS, Baltimore.
*VILRAY P. BLAIR, St. Louis.

The Advisory Board for Medical Specialties has prepared this booklet for the purpose of furnishing general information regarding its activities in connection with graduate medical education and the certification of medical specialists in the United States and Canada. It was designed also to give detailed information concerning the procedures to be followed by examining Boards in the various specialties in order to obtain membership in this Advisory Board and official recognition by the Council on Medical Education and Hospitals of the American Medical Association. This information was based in large part on the experience of previously formed Boards during the past twenty-three years.

Examining Boards have now been organized, approved, and are actively functioning in the twelve specialties originally recognized as suitable fields for the certification of specialists. Two of the more limited specialties, namely, anesthesiology and plastic surgery have examining boards as affiliates of the American Board of Surgery.

The Committee on Standards and Examinations of the Advisory Board and the Council on Medical Education and Hospitals of the American Medical Association express themselves as opposed to the organization of examining boards in any special field having less than one hundred in the United States engaged in the special practice in question.

ORGANIZATION

Several American Boards had been functioning actively and successfully for a number of years prior to the organization of the Advisory Board for Medical Specialties. Their purposes were, primarily, to establish minimum standards of graduate educational and training requirements for physicians representing themselves to the public as being specialists, with certification by the boards of candidates after they had been able successfully to pass the boards' examinations. Secondarily, these boards hoped to improve the general standards of graduate medical education and facilities for special training. This aim is being steadily and rapidly accomplished.

Credit for the improvement in undergraduate medical education, so noticeable in this country during the past twenty-five years, is due to the efforts of universities, educational foundations, medical schools, medical societies, and to public support along these lines. The same is true of the present transition in graduate education in the specialties, sharply stimulated by the establishment and activities of these certifying boards.

The American Board of Ophthalmology was the first special certifying board to be created in 1916; the American Board of Otolaryngology, established in 1924, was followed by the American Board of Obstetrics and Gynecology in 1930, and the American Board of Dermatology and Syphilology in 1932.

During part of this period of time plans for the organization of similar boards in other specialties were being actively projected, all of these groups being desirous of availing themselves of the experiences of the already existing boards.

It was soon recognized that some formal and official plan of organization must be established. It was clearly essential that an examining board must have the official sanction of the National societies in its given specialty as well as that of its section of the American Medical Association, but there was, at that time, nothing to prevent unofficial groups from organizing examining Boards and using the title American Board.

Consequently, in order to avoid duplication of effort as well as to coordinate the work of the several boards and other interested groups into a concise and homogeneous plan for betterment, it was deemed advisable to create an Advisory Board which should give consideration to those problems common to all, and which should be representative of each organization concerned.

During the years 1933 and 1934 this Advisory Board was organized and began actively to function. Simultaneously at the Milwaukee session of the American Medical Association in 1933, a resolution was adopted authorizing the Council on Medical Education and Hospitals: (1) to formulate standards of administration based in general upon those of the American Boards of Ophthalmology, of Otolaryngology, of Obstetrics and Gynecology, and of Dermatology and Syphilology and, (2) to recognize officially new boards meeting these standards, this recognition to be based upon previous approval and recommendation to the Council by the Advisory Board.

A constitution and by-laws for the Advisory Board was adopted at a meeting in Chicago on February 11, 1934. The original member organizations of the Advisory Board for Medical Specialties were: the Association of American Medical Colleges; the American Hospital Association; the Federation of State Medical Boards of the U. S. A.; the National Board of Medical Examiners; the American Board of Ophthalmology; the American Board of Otolaryngology; the American Board of Obstetrics and Gynecology, and the American Board of Dermatology and Syphilology. Two representatives were appointed from each of these organizations to serve on the Advisory Board. Since that time the American Boards of Pediatrics, of Psychiatry and Neurology, of Radiology, of Orthopaedic Surgery, of Urology, of Pathology, of Internal Medicine, and of Surgery have been properly organized, approved, and elected to membership in the Advisory Board and recommended to the Council on Medical Education and Hospitals of the American Medical Association for official recognition. The American Board of Surgery now has two affiliate Boards (Anesthesiology and Plastic Surgery) functioning under its general direction and also represented in the Advisory Board.

PURPOSE

Article II of the Constitution states that, "This Board shall act in an advisory capacity to such organizations as may seek

its advice concerning the coordination of the education and certification of medical specialists." Specifically, this represents an official effort to advance the standards and improve the methods of graduate education and training in the medical specialties, with certification of men thus educated and trained who qualify as specialists in the various branches. The common interest of the member organizations in these purposes is obvious. It is equally apparent that some fixed definition of specialties needed to be established, preferably on a graduate educational basis, that minimum standards of organization and conduct for new examining boards should be fixed, and that some official method of recognition be developed.

There is no desire on the part of these boards to interfere with any practitioners of medicine in any of their regular or legitimate activities. Their fundamental purpose is to ensure to the public, both lay and medical, and for its protection, that physicians claiming to be specialists with presumably special proficiency in one or another branch of medicine actually possess the qualifications they claim. This presupposes special training and demonstrable capability along certain lines of work. Suitable evidence of this is the ability of an individual to satisfy an examining Board about his training and then to pass the examination for certification.

The function of each member organization and the relationship of interests will be apparent from a review of the names of these Committees and Boards.

Preparations for providing medical school and hospital facilities for the required graduate training are going forward actively; surveys of existing facilities for assistant residencies and residencies are being made at the present time in the several specialties; previous activities in the various States respecting the issuance of licenses to specialists are being discussed with a view to their being coordinated with the present activities of the several specialty boards.

Active plans are under way for the publication of a Directory of Medical Specialists to include the names and biographic data of all men certified by the several specialty Boards, as well as information regarding the organization and functions. The first edition of the Directory will appear late in 1939 and will contain the names and brief biographic records, including hospital and teaching appointments of more than 16,000 diplomates or certified specialists.

The Council on Medical Education and Hospitals of the American Medical Association has agreed, under the authority vested in it by the resolution passed at the Milwaukee meeting (1933) and referred to above, that applications of special examining boards for official approval are to be referred to the Council through the Advisory Board for Medical Specialties, recommendation by the Advisory Board for such approval to be based upon the standards mutually adopted. The understanding exists that the Council cannot be bound by recommendations of the Advisory Board but will consult the Advisory Board for Medical Specialties before acting upon any application so long as mutually adopted standards are in force.

In response to the generally recognized need for a clear formulation of the educational problems and principles involved in graduate and postgraduate medical training, the Advisory Board at its meeting in June 1937 voted to create a Commission on Graduate Medical Education to study the various aspects of the whole problem. This Commission includes representatives of the profession, the specialties, the universities, the hospitals, and the licensing bodies. The results of the study contemplated should be of real assistance to the various specialty boards, hospitals, medical schools, and regulatory bodies dealing with this phase of American medicine.

MEMBERSHIP

The Advisory Board is composed of two representatives from each of the approved examining Boards in the medical specialties and such other national organizations as are interested in education, examination, and certification of medical specialists and duly elected to this body.

The Constitution provides that, "To be eligible for representation in this Board an examining board in a specialty must be composed of members elected from or appointed by societies recognized by this Board as a national society in that specialty together with representation from the related section of the American Medical Association." Upon being accepted by the Advisory Board the Board in question is recommended to the Council on Medical Education and Hospitals of the American Medical Association as qualified for recognition. Membership in the Advisory Board provides for the inclusion of the name of the organization in all lists and directories published by the Advisory Board for Medical Specialties and provides also for publication of the names of specialists certified by each individual examining Board.

Meetings of the Advisory Board for Medical Specialties are held annually as required.

Traveling and other expenses of representatives in attendance are borne by member organizations.

ESSENTIALS FOR APPROVED SPECIAL EXAMINING BOARDS

(Adopted by the Advisory Board for Medical Specialties, June 10, 1934)

I. ORGANIZATION

1. A special examining board to be approved by the Advisory Board for Medical Specialties should represent a recognized and distinct specialty of medicine. (It is agreed between the Council and the Advisory Board that no board shall be organized in a special field having less than one hundred members engaged in special practice in the United States.)

2. It should be composed of representatives of the national organizations in that specialty including the related section of the American Medical Association.

3. It should be incorporated.

4. A special board should:

(a) Determine whether candidates have received adequate preparation.

(b) Provide a comprehensive test of the ability and fitness of such candidates.

(c) Certify to the competence of those physicians who have satisfied its requirements.

II. DEFINITION OF SPECIAL FIELDS

The following branches of medicine at present are recognized as suitable fields for the certification of specialists:

1. Internal Medicine
2. Surgery
3. Pediatrics
4. Obstetrics and Gynecology
5. Ophthalmology
6. Otolaryngology
7. Dermatology and Syphilology
8. Psychiatry and Neurology
9. Urology
10. Orthopaedic Surgery
11. Radiology
12. Pathology

III. QUALIFICATION OF CANDIDATES

Each applicant for admission to the examination should be required to present evidence that he has met the following standards:

A. General Qualifications.

1. Satisfactory moral and ethical standing in the profession.

2. Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Except as here provided, membership in other societies should not be required. (Exceptions to the foregoing may now be made at the discretion of any individual Board for good and sufficient reasons.)

B. Professional Standing.

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association.

2. Completion of an internship, preferably of the general rotating type, of not less than one year in a hospital approved by the same Council.

C. Special Training.

(To be effective as far as practical not later than January 1, 1942.)

1. A period of study, after the internship, of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the same Council as competent to provide a satisfactory training in the special field of study.

2. This period of specialized preparation should include:

(a) Graduate training in anatomy, physiology, pathology, and the other basic medical sciences which are necessary to the proper understanding of the specialty in question.

(b) An active experience of not less than eighteen months in hospital clinics, dispensaries and diagnostic laboratories recognized by the Council as competent in the specialty.

(c) Examinations in the basic medical sciences of a specialty as well as in the clinical, laboratory and public health aspects.

3. An additional period of not less than two years of study and/or practice.

The foregoing report is practically identical with an outline of Essentials for Approved Specialty Boards adopted June 10, 1934, by the Council on Medical Education and Hospitals of the American Medical Association and ratified June 11, 1934, by the House of Delegates of the American Medical Association.

ORGANIZATION OF EXAMINING BOARDS

The foregoing essentials for approved special examining boards and their affiliate boards were followed in the organization of the existing boards.

Official sponsorship of the national societies, and the related section of the American Medical Association, in a specialty organizing an examining Board, has included the election or appointment of representatives from each of these national societies to serve on the Board as examiners and directors.

Each Board was or is incorporated. Each application for organization and approval included:

1. The name of the proposed Board.
2. A statement of its method of organization, the sponsoring societies, its list of officers, and the names and addresses of the elected or appointed members of the Board, including the societies which each represents.
3. A copy of the tentative constitution and by-laws.
4. A copy of its proposed articles of incorporation.
5. An outline of qualification requirements for applicants.
6. An outline of proposed methods of examination.
7. A copy of the application blank.
8. Any general information or statement of importance.
9. Approximate number of physicians practicing the specialty which the Board represents.

These data are submitted in duplicate to the office of the Secretary of the Advisory Board for Medical Specialties.

An application for election to membership in the Advisory Board and the data listed above are referred immediately for review by the Committee on Standards and Examinations of the Advisory Board. Upon approval by the Committee incorporation is then completed and a statement of this filed with the Secretary. Action on the application will be taken at the succeeding meeting of the Advisory Board for Medical Specialties and each examining Board as elected will be recommended to the Council on Medical Education and Hospitals of the American Medical Association for official recognition. One of the two sets of data submitted is forwarded to the Council on Medical Education and Hospitals of the American Medical Association with the Advisory Board's recommendation. Examination and certification of applicants in the specialty may begin immediately upon the special board being given such approval.

Communications should be addressed to the secretary.

CONSTITUTION AND BY-LAWS

Adopted at Organization Meeting, February 11, 1934

ARTICLE I

NAME

The name of this organization shall be "The Advisory Board for Medical Specialties."

ARTICLE II

PURPOSE

This Board shall act in an advisory capacity to such organization as may seek its advice concerning the coordination of the education and certification of medical specialists. No action taken by this Board shall be binding upon any member organizations.

ARTICLE III

MEMBERSHIP

Section I

This Board shall be composed of two representatives from each of the examining boards of the medical specialties and such other national organizations as are interested in education, examination, or certification of medical specialists.

Section II—Original Membership

At the time of the organization, this Board shall be composed of representatives from each of the following bodies:

The American Board of Ophthalmology.
The American Board of Otolaryngology
The American Board of Obstetrics and Gynecology
The American Board of Dermatology and Syphilology
The Association of American Medical Colleges
The National Board of Medical Examiners
The Federation of State Medical Boards of the U. S. A.
The American Hospital Association
The Council on Medical Education and Hospitals of the American Medical Association

Section III—Additional Membership

To be eligible for representation in this Board an examining board in a specialty must be composed of members elected from or appointed by Societies recognized by this Board as National Societies in that specialty together with representation from the related Section of the American Medical Association. Upon being accepted by this Advisory Board the board in question will be recommended to the American Medical Association as being qualified for recognition by that Association.

Section IV—Quorum

A quorum at any meeting shall consist of a majority of the official representatives to the Board and at least one-third of the membership organizations shall be represented. Each member organization shall be entitled to two votes.

ARTICLE IV

OFFICERS AND STANDING COMMITTEES

Section I—Officers

The officers of this Board shall be (a) President, (b) Vice President, (c) Secretary-Treasurer. These officers shall be elected at the annual meeting each year.

Section II—Standing Committees

The standing committees shall be as follows:

1. The Executive Committee
2. Standards and Examinations
3. Finance

The Executive Committee shall consist of the President, Vice President, Secretary-Treasurer, and two members elected at the annual meetings. No organization should have more than one member on the Executive Committee. The President shall be the Chairman of the Executive Committee. The other standing committees shall be appointed by the President.

ARTICLE V

AMENDMENTS TO THE CONSTITUTION

Amendents to this constitution may be made by a majority vote of the official representatives present at any annual meeting provided that thirty days' notice of the proposed amendment has been given each member of the Board.

BY-LAWS

ARTICLE I

DUTIES OF OFFICERS

Section I

The President shall preside at all meetings of the Board, shall act as Chairman of the Executive Committee, and shall appoint all other standing committees. He shall call meetings of the Executive Committee at such time and place as may be deemed necessary.

Section II

The Vice President shall assume the duties of the President in his absence.

Section III

The Secretary-Treasurer shall perform the usual duties of this office.

ARTICLE II

EXECUTIVE COMMITTEE

The Executive Committee shall carry out the policies and activities decided upon by the Board. It shall have ad interim authority to initiate policies subject to approval by the Board at the annual or any special meeting. The two elected members shall serve for two years, the terms of office terminating in alternate years.

ARTICLE III

MEETINGS

Section I

There shall be an annual meeting at such time and place as the Board may determine. A special meeting may be called by the President upon ten days' notice to all members stating time, place and purpose of such meetings. The Executive Committee may present other business for consideration.

Section II

The Executive Committee shall meet subject to the call of the President.

Section III

Robert's Rules of Order shall be followed except where they conflict with this Constitution and By-Laws.

ARTICLE IV

AMENDENTS TO THE BY-LAWS

Amendments to these by-laws may be made at any regular or special meeting of the Board.

DESCRIPTION OF MEDICAL SCHOOLS

ARKANSAS

Little Rock

UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE, 1209 McAlmont Street.—Organized in 1879 as the Medical Department of Arkansas Industrial University. Present title in 1899. In 1911 the College of Physicians and Surgeons united with it and it became an integral part of the University of Arkansas. The first class was graduated in 1880. Clinical teaching was suspended in 1918 but resumed in 1923. Coeducational since organization. The faculty consists of 26 professors and 82 lecturers and assistants, total 108. The curriculum covers four years of nine months each. Entrance requirements are two years of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. The fees for the four years for residents of Arkansas are $275; nonresidents are charged $155 additional each year. The registration for 1938-1939 was 282; graduates, 72. The next session begins Sept. 27, 1939, and ends June 4, 1940. The Dean is Stuart P. Cromer, M.D.

CALIFORNIA

Berkeley-San Francisco

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL, University Campus, Berkeley; Medical Center, San Francisco.—Organized in 1862 as the Toland Medical College. The first class graduated in 1864. In 1872 it became the Medical Department of the University of California. In 1909, by legislative enactment, the College of Medicine of the University of Southern California, at Los Angeles, became a clinical department but was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged, and elective chairs in homeopathic materia medica, and therapeutics were provided. Coeducational since organization. Three years of collegiate work are required for admission. The work of the first year is given at Berkeley and that of the last three years at San Francisco. The faculty is composed of 154 professors and 259 associates and assistants, a total of 413. The course covers four years of eight months each, and an additional fifth year consisting of an internship in a hospital or of special work in a department of the medical school. Fees for the four years, respectively, for residents of California are $277, $240, $235 and $235; nonresidents are charged $300 additional each year. The registration for 1938-1939 was 245; graduates, 63. The next session begins Aug. 28, 1939, and ends May 25, 1940. The Dean is Langley Porter, M.D., San Francisco.

Loma Linda-Los Angeles

COLLEGE OF MEDICAL EVANGELISTS.—Organized in 1909. The first class graduated in 1914. The laboratory departments are at Loma Linda, the clinical departments at Los Angeles. Coeducational since organization. The faculty is composed of 57 professors and 272 associates, assistants and instructors, a total of 329. The course covers a period of four years of nine months each and an additional year consisting of an internship in an approved hospital. Sixty-four semester hours of collegiate work are required for admission. The total fees are respectively, $545, $535, $545 and $555. The registration for 1938-1939 was 340; graduates, 109. The next session begins Sept. 4, 1939, and ends June 9, 1940. The Dean is E. H. Risley, M.D., Loma Linda; and the Associate Dean is W. E. Macpherson, M.D., Los Angeles.

Los Angeles

UNIVERSITY OF SOUTHERN CALIFORNIA SCHOOL OF MEDICINE, 3551 University Avenue.—Organized in 1885 as the University of Southern California College of Medicine. First class graduated in 1888. In 1908 it became the Medical Department of the University of California in Los Angeles. In 1909 the College of Physicians and Surgeons, established in 1904, became the Medical Department of the University of Southern California. Its activities were suspended in 1920; reorganized in May 1928, under present title. The faculty consists of 149 professors and 150 instructors, assistants and others, a total of 299. An internship is required for graduation. Three years of collegiate work are required for admission. Coeducational since organization. Annual fees amount to $452. The registration for 1938-1939 was 199; graduates, 44. The next session begins Sept. 18, 1939, and ends June 8, 1940. The Dean is Paul S. McKibben, Ph.D.

San Francisco

STANFORD UNIVERSITY SCHOOL OF MEDICINE, 2398 Sacramento Street, San Francisco.—Organized in 1908, when, by agreement, the interests of Cooper Medical College were taken over. The first class graduated in 1913. Coeducational since organization. The faculty consists of 127 professors and 153 lecturers, assistants and others, a total of 280. Three years of collegiate work are required for admission. The course covers four years of eight and one-half months, each, plus a fifth year of intern work. The fees for the four years, respectively, are $470, $446, $364 and $364. The registration for 1938-1939 was 237, graduates, 57. The next session begins September 26, 1939, and ends June 16, 1940. The Dean is Loren Roscoe Chandler, M.D.

COLORADO

Denver

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE, 4200 East Ninth Avenue.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged, Jan. 1, 1911. Coeducational since organization. The faculty is composed of 57 professors and 130 lecturers, instructors and assistants, a total of 187. The course covers four years of nine months each. The entrance requirements are three years of collegiate work. The fees for residents of Colorado are, respectively, $301, $306, $291 and $286. Nonresidents are charged $235 additional each year. The registration for 1938-1939 was 209; graduates, 49. The next session begins Sept. 25, 1939, and ends June 10, 1940. The Dean is Maurice H. Rees, M.D.

CONNECTICUT

New Haven

YALE UNIVERSITY SCHOOL OF MEDICINE, 333 Cedar Street.—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1812; instruction began in 1813; first class graduated in 1814. A new charter in 1879 changed the name to the Medical Department of Yale College. In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter. In 1887, Yale College became Yale University. Coeducational since 1916. The faculty consists of 167 professors and 217 lecturers and assistants, a total of 384. The requirements for admission are three years of collegiate work. The course covers four years of nine months each. The fees are respectively, $505, $500, $500, and $520. The registration for 1938-1939 was 200; graduates, 43. The next session begins Sept. 25, 1939, and ends June 12, 1940. The Dean is Stanhope Bayne-Jones, M.D.

DISTRICT OF COLUMBIA

Washington

GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE, 3900 Reservoir Road, N.W.—Organized in 1851. First class graduated in 1852. The faculty is composed of 63 professors, 45 associate professors, 28 assistant professors and 119 instructors; total 255. Three years of collegiate work are required for admission. The course of study covers four terms of eight and one-half months each. The present fees for each of the four sessions are $500. The registration for 1938-1939 was 336; graduates 73. The next session begins Sept. 18, 1939, and ends June 10, 1940. The Dean is David V. McCauley, S.J., Ph.D.

GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, 1335 H Street, N.W.—Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years except in 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904, by an Act of Congress, the title of George Washington University was granted to the institution. Coeducational since 1884. The faculty is composed of 70 professors and 124 instructors, demonstrators and assistants, a total of 194. Two years of collegiate work are required for admission. The course covers four years of thirty-six weeks each. The fees for each of the four years are $550. The registration for 1938-1939 was 243; graduates, 56. The next session begins Sept. 25, 1939, and ends June 12, 1940. The Dean is Walter A. Bloedorn, M.D.

HOWARD UNIVERSITY COLLEGE OF MEDICINE, Fifth and W Streets, N.W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Coeducational since organization. Negro students compose a majority of those in attendance. The faculty comprises 28 professors and 68 lecturers and assistants, 96 in all. The admission requirements are at least two years of collegiate work. The course covers four years of thirty-three weeks each. The fees are, respectively, $269, $269, $259 and $266. Registration for 1938-1939 was 129; graduates, 30. The next session begins Sept. 25, 1939, and ends June 7, 1940. The Dean is Numa P. G. Adams, M.D.

GEORGIA

Atlanta

EMORY UNIVERSITY SCHOOL OF MEDICINE, 50 Armstrong Street.—Organized in 1854 as the Atlanta Medical College. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874. In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with the Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915; assumed present title in 1917. Three years of collegiate work are required for admission. The faculty consists of 18 professors and 180 associates and assistants, a total of 198. The course of study is four years of thirty-two weeks each. The fees for each of the four years are $338. The registration for 1938-1939 was 208; graduates, 47. The next session begins Sept. 25, 1939, and ends June 10, 1940. The Dean is Russell H. Oppenheimer, M.D.

Augusta

UNIVERSITY OF GEORGIA SCHOOL OF MEDICINE, University Place.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia, the name being changed July 1, 1933, to the University of Georgia School of Medicine. Property transferred to the University in 1911. Classes were graduated in 1833 and all subsequent years except 1862 and 1863. Coeducation was begun in 1920. The faculty includes 60 professors and 29 assistants, 89 in all. Three years of collegiate work are required for admission. The course is four years of thirty-four weeks each. The fees for each of the four years are $185 for residents of Georgia, and $365 each year for nonresidents. The registration for 1938-1939 was 157; graduates, 31. The next session begins Sept. 25, 1939, and ends June 10, 1940. The Dean is G. Lombard Kelly, M.D.

ILLINOIS

Chicago

LOYOLA UNIVERSITY SCHOOL OF MEDICINE, 706 South Wolcott Avenue.—Incorporated in 1915 as the Bennett Medical College, and operated as an organic part of Loyola University, by virtue of an agreement entered into with the trustees of Bennett Medical College. Present title assumed in 1917. The Chicago College of Medicine and Surgery was purchased in 1917. The first class graduated in 1916. Coeducational. Three years of collegiate work are required for admission. The course of study is five years, including an internship. The faculty is composed of 120 in professorial rank and 143 others, a total of 263. The fees for each year are $510, $450, $366 and $330 respectively. The enrolment for 1938-1939 was 350; graduates, 110. Next session for juniors and seniors begins September 11, 1939, for freshmen and sophomores, Sept. 25, 1939, and ends June 8, 1940. The Dean is Louis D. Moorhead, M.D.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, 303 East Chicago Avenue.—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891, when the present title was taken. Became an integral part of Northwestern University in 1905. Coeducational since 1926. The faculty comprises 136 professors, 335 associates and instructors, a total of 471. The requirement for admission is three years of collegiate work. The B.S. degree in medicine may be conferred before the end of the senior year. The course covers four years of eight and one-half months each and a fifth year spent in an approved hospital as an intern or in other practical work. The total fees are $414 each year. The registration for 1938-1939 was 556; graduates, 154. The next session begins Sept. 26, 1939, and ends June 15, 1940. The Dean is Irving S. Cutter, M.D.

THE UNIVERSITY OF CHICAGO MEDICAL SCHOOLS.—The Medical Schools include (a) The School of Medicine of the Division of the Biological Sciences and (b) Rush Medical College, both of which are organized within the Division of the Biological Sciences. The first two years of the medical course for both are given in the School of Medicine of the Division of the Biological Sciences and the last two years are given either in the School of Medicine of the Division of the Biological Sciences or in Rush Medical College.

The School of Medicine of the Division of the Biological Sciences, Fifty-Eighth Street and Ellis Avenue.—Organized in 1924. The work of the first two years of the medical course has been given on the Quadrangles since 1899, in cooperation with Rush Medical College, and that of the third and fourth clinical years has been given since 1924 with the organization of this medical school and the construction on the Quadrangles of the University hospitals and clinics. Coeducational. The faculty is composed of 97 professors, 162 associates, instructors and others, a total of 259. The requirements for admission are three years of collegiate work. The B.S. degree in medicine may be obtained during the second year. The curriculum covers twelve quarters of work. Students are admitted at the beginning of the spring, summer and autumn quarters. Sixty-five students are admitted to first year classes in each calendar year. The tuition fee for each of the four years is $450. The registration for 1938-1939 was 297; graduates, 51. The next session begins Oct. 2, 1939, and ends June 13, 1940.

Rush Medical College, 1758 West Harrison Street.—Chartered in 1837; held first class in 1843. First class graduated in 1844. In 1887 the college became the medical department of Lake Forest University, retaining, however, its self government. This relation was dissolved in April, 1898, and in the same month affiliation with the University of Chicago was established. Coeducational since 1898. In May 1924, by a new contract, the University of Chicago took over the work of Rush Medical College as a department of the University. Thereafter only clinical work has been offered by Rush Medical College. The work of the first two years is given on the University Quadrangles. Three years of collegiate work are required for admission. The year is divided into four quarters of twelve weeks each; the completion of the work of three of these quarters gives credit for a college year. The requirements for the degree consists of twelve full quarters of work. The faculty is composed of 137 professors, 172 associates, instructors and others, a total of 309. The tuition fee is $450 yearly. The registration for 1938-1939 was 223; graduates, 111. The next session begins Oct. 2, 1939, and ends June 12, 1940. The school is in session all year except the month of September.

All correspondence relating to general policies should be addressed to W. H. Taliaferro, Ph.D., Dean of the Division of the Biological Sciences, or to A. C. Bachmeyer, M.D., Associate Dean of the Division; that relating to Rush Medical College should be addressed to Emmet B. Bay, M.D., Associate Dean of the Division of the Biological Sciences (Rush Medical College); and that pertaining to student questions should be addressed to B. C. H. Harvey, M.D., Dean of Medical Students.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE, 1853 West Polk Street.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897. Relationship with the university was cancelled in June 1912, and was restored in March 1913, when the present title was assumed. Coeducational since 1898. Three years of collegiate work are required for admission. The curriculum covers four years of thirty-two weeks each, and a year of internship in an approved hospital. The B.S. degree in medicine is conferred at the end of the second year. The faculty is composed of 143 professors and 325 associates, instructors and assistants, a total of 468. The tuition is $150 a year for students who are residents of Illinois; $225 a year for nonresident students. The registration for 1938-1939 was 638; graduates 160. The next session begins Sept. 25, 1939, and ends June 7, 1940. The Dean is David J. Davis, M.D.

INDIANA

Bloomington-Indianapolis

INDIANA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1903 but did not give all the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879) merged into it. The first class was graduated in 1908. Coeducational since organization. The faculty consists of 270 professors, lecturers, associates and assistants. Three years of collegiate work are required for admission. The B.S. degree in medicine is conferred. The work of the first year is given at Bloomington and the work of the next three years at Indianapolis. The regular fee for the medical course for all four years is $217 a year for residents of Indiana, and $423 for nonresidents. The registration for 1938-1939 was 449; graduates, 104. The next session begins Sept. 16, 1939, and ends June 3, 1940. The Dean at Bloomington is Burton D. Myers, M.D., and the Dean at Indianapolis is Willis D. Gatch, M.D.

IOWA

Iowa City

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE, University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. Coeducational since 1870. The faculty is made up of 56 professors, 74 lecturers, demonstrators and assistants, a total of 130. Three years of collegiate work are required for admission. The B.A. degree in the combined course of liberal arts and medicine is conferred. The course of study covers four years of thirty-four weeks each. The tuition fee is $196 each year for residents of Iowa and $460 for nonresidents. The registration for 1938-1939 was 308; graduates, 86. The next session begins Sept. 21, 1939, and ends June 3, 1940. The Dean is Ewen Murchison MacEwen, M.D.

KANSAS

Lawrence-Kansas City

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE.—Organized in 1880. It offered only the first two years of the medical course until 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. Absorbed Kansas Medical College in 1913. First class graduated in 1906. The clinical courses are given at Kansas City. Coeducational since 1880. The faculty includes 62 professors and 142 instructors, assistants and others, a total of 204. The requirement for admission is three years of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. The course covers four years of nine months each. The total fees for residents of the state are, respectively, $137, $163, $155 and $157. For nonresidents the fees are, respectively, $202, $343, $405 and $407. The registration for 1938-1939 was 291; graduates, 70. The next session begins Sept. 21, 1939, and ends June 10, 1940. The Dean is H. R. Wahl, M.D., Kansas City.

KENTUCKY

Louisville

UNIVERSITY OF LOUISVILLE SCHOOL OF MEDICINE, 101 West Chestnut Street.—Organized in 1837 as Louisville Medical Institute. The first class graduated in 1838, and a class graduated each subsequent year except 1863. In 1846 the name was changed to University of Louisville Medical Department. In 1907 it absorbed the Kentucky University Medical Department; in 1908, the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. In 1922 it changed its name to the University of Louisville School of Medicine. Coeducational since organization. Two years of collegiate work are the minimum requirement for admission. Preference is given applicants with a degree or three college years leading to a degree. The faculty numbers 77 professors, and 107 assistants, instructors and others, a total of 184. Course covers four years of thirty-two weeks each, exclusive of vacations and examinations. Fees are, respectively, $450, $450, $450 and $460. The registration for 1938-1939 was 338; graduates, 87. The next session begins Sept. 14, 1939, and ends June 1, 1940. The Dean is John Walker Moore, M. D.

LOUISIANA

New Orleans

LOUISIANA STATE UNIVERSITY SCHOOL OF MEDICINE, 1542 Tulane Avenue.—Organized January 1931 as Louisiana State University Medical Center. Present title in 1939. Coeducational. First session October 1931, with students of first and third year. Faculty comprises 43 professors and 160 assistant professors, instructors and assistants, a total of 203. Course covers four years of no less than 32 weeks each and one year of general rotation or laboratory internship in an approved hospital. A minimum of three years' collegiate work is required for admission. Total fees, $132 each year for residents of Louisiana; additional tuition of $400 each year for nonresidents. The registration for 1938-1939 was 323; graduates, 59. The next session begins Sept. 11, 1939, and ends May 31, 1940. The Dean is Rigney D'Aunoy, M.D.

TULANE UNIVERSITY OF LOUISIANA SCHOOL OF MEDICINE, 1430 Tulane Avenue.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-1865, inclusive. It was transferred to the Medical Department of the

University of Louisiana in 1847, and became the Medical Department of the Tulane University of Louisiana in 1884. Present title in 1913. Coeducational since 1915. The faculty comprises 34 professors and 198 associate and assistant professors, instructors and assistants, a total of 232. The course covers four years of thirty-two weeks each. A minimum of three years of collegiate work is required for admission. Total fees are, respectively, $457, $447, $437 and $447. The registration for 1938-1939 was 478; graduates, 110. The next session begins Sept. 22, 1939, and ends June 5, 1940. The Dean is Charles C. Bass, M.D.

MARYLAND

Baltimore

JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE, 710 North Washington Street.—Organized in 1887. Offered preliminary course only until 1893. The first class graduated in 1897. Coeducational since organization. The faculty consists of 68 professors and 389 instructors, assistants and others, a total of 457. The requirement for admission is a collegiate degree. The course extends over four years of eight and one-half months each. The total fees are, respectively, $621, $620, $620 and $620. The registration for 1938-1939 was 279; graduates, 73. The next session begins Sept. 26, 1939, and ends June 4, 1940. The Dean is Alan M. Chesney, M.D.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND COLLEGE OF PHYSICIANS AND SURGEONS, Lombard and Greene Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged with it in 1913. In 1915 the College of Physicians and Surgeons of Baltimore was merged and the present name assumed. Coeducational since 1918. The faculty consists of 41 professors, 75 associate and assistant professors, and 178 instructors and assistants, a total of 294. Three years of collegiate work are required for admission. The course covers four years of eight months each. The fees are, respectively, $485, $475, $475 and $490 for residents of the state; for nonresidents the fees are $150 additional each year. The registration for 1938-1939 was 371; graduates, 88. The next session begins Sept. 21, 1939, and ends June 1, 1940. The Dean is J. M. H. Rowland, M.D.

MASSACHUSETTS

Boston

BOSTON UNIVERSITY SCHOOL OF MEDICINE, 80 East Concord Street.—Organized in 1873 as a homeopathic institution. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class was graduated in 1874. Became nonsectarian in 1918. Coeducational since organization. Three years of collegiate work are required for admission. The faculty includes 26 professors, 171 associates and others, a total of 197. The course covers four years. Total fees for each of the four years, respectively, are $479, $475, $425, $440. The registration for 1938-1939 was 201; graduates, 49. The next session begins September 21, 1939, for 1st, 2d and 3d year students, and September 11, 1939, for 4th year students, and ends June 10, 1940. The Dean is Alexander S. Begg, M.D.

HARVARD MEDICAL SCHOOL, 25 Shattuck Street.—Organized in 1782. The first class graduated in 1788. It has a faculty of 156 professors and 443 other instructors and assistants, a total of 599. Two years of collegiate work are required for admission. The total fees for each of the four years are $420, plus $5 the first year for matriculation. The registration for 1938-1939 was 517; graduates, 130. The next session begins Sept. 25, 1939, and ends June 20, 1940. The Dean is C. Sidney Burwell, M.D.

TUFTS COLLEGE MEDICAL SCHOOL, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. Coeducational since 1894. It has a faculty of 82 professors and 296 assistants, lecturers and others, a total of 378. A bachelor's degree is required for admission. The course covers four years of eight months each. The total fees for each of the four years are $512, $507, $507 and $517. The registration for 1938-1939 was 396; graduates, 110. The next session begins Sept. 20, 1939, and ends June 17, 1940. The Dean is A. Warren Stearns, M.D.

MICHIGAN

Ann Arbor

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. Coeducational since 1870. It has a faculty of 28 professors, 18 associate professors, 29 assistant professors, 131 assistants, instructors and lecturers; a total of 206. The entrance requirements are ninety semester hours. The curriculum covers four years of nine months each. The total fees for Michigan students are $220 for each of the four years, respectively; for nonresidents, $350 a year. The registration for 1938-1939 was 469; graduates, 102. The next session begins Sept. 25, 1939, and ends June 15, 1940. The Dean is A. C. Furstenberg, M.D.

Detroit

WAYNE UNIVERSITY COLLEGE OF MEDICINE, 1516 St. Antoine Street.—Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. Reorganized with the title of Detroit College of Medicine and Surgery in 1913. The first class graduated in 1886. In 1918 it became a municipal institution under the control of the Detroit Board of Education. In 1934 the name was changed by action of the Detroit Board of Education to Wayne University College of Medicine, as a part of the program of consolidation of the Detroit City Colleges into a university system. Coeducational since 1917. Entrance requirement is an academic degree or 90 semester hours of academic credit with "combined degree" guaranteed by school of arts and sciences. The faculty consists of 48 professors, 255 lecturers and others, a total of 303. The course covers four years of nine months each and a fifth year of intern work. The total fees for each of the first four years are, for Wayne County residents $325, and for nonresidents outside of Wayne County $425; for the fourth year a diploma fee of $10.00. The registration for 1938-1939 was 237; graduates, 76. The next session begins September 18, 1939, and ends June 15, 1940. The Associate Dean is William J. Stapleton Jr., M.D.

MINNESOTA

Minneapolis

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. Coeducational since organization. The faculty includes 90 professors and 238 instructors, a total of 328. The curriculum covers four years of nine months each, and a year's internship in an approved hospital. The school is operated on the four-quarter plan. The entrance requirements are three years of university work, which must include six semester credits of rhetoric, eight semester credits of physics; thirteen credits of general chemistry, qualitative and quantitative analysis, organic and physical chemistry; eight credits of general zoology and genetics and eugenics; four credits of general psychology, and a reading knowledge of scientific German, with a "C" average in all subjects and in the sciences. Students are required to meet the requirements for a degree of B.S. or B.A. before receiving the degree of Bachelor of Medicine (M.B.), which is granted at the end of the four-year course. The M.D. degree is conferred after a year of intern work, of advanced laboratory work, or of public health work has been completed. Students are graduated at the end of any quarter in which work is completed and examinations passed. Total fees are $243 for residents and $393 for nonresidents, each year of three quarters. The registration for 1938-1939 was 489; graduates, 123. The next session begins Oct. 2, 1939, and ends June 15, 1940. The Dean is Harold S. Diehl, M.D.

MISSOURI

St. Louis

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, 1402 South Grand Boulevard. Organized in 1901 as the Marion-Sims-Beaumont Medical College by union of Marion-Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. First class graduated in 1902. It became the Medical School of St. Louis University in 1903. The faculty is composed of 77 professors and 252 instructors and assistants, a total of 329. The completion of three years of college study is the minimum admission requirement but students presenting meritorious credits in excess of the minimum are accepted by preference. The curriculum covers four years of thirty-two weeks each. The summer is optional and offers courses academically equivalent to those in the regular session. The total fees are, respectively, $525, $525, $525 and $455. The registration for 1938-1939 was 441; graduates, 123. The next session begins Sept. 19, 1939, and ends June 1, 1940. The Dean is Alphonse M. Schwitalla, S.J., Ph.D.

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, Kingshighway and Euclid Avenue.—Organized in 1842 as the Medical Department of St. Louis University. The first class graduated in 1843. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. Coeducational since 1818. The faculty comprises 114 professors and 223 lecturers, instructors and others, a total of 337. Four years of collegiate work are required for admission. The B.S. degree in medicine is conferred at the end of the third or fourth year. The course is four years of eight months each. The total fees are, respectively, $524, $519, $419 and $424. The registration for 1938-1939 was 347; graduates, 95. The next session begins Sept. 28, 1939, and ends June 11, 1940. The Dean is Philip A. Shaffer, Ph.D.

NEBRASKA

Omaha

CREIGHTON UNIVERSITY SCHOOL OF MEDICINE, 306 North Fourteenth Street.—Organized in 1892 as the John A. Creighton Medical College. The first class graduated in 1893. Present title in 1921. Coeducational since organization. It has a faculty of 61 professors and 77 instructors, lecturers and assistants, a total of 138. Two years of collegiate work required for admission. The B.S. degree in medicine is conferred at the end of the second year. The curriculum covers four years of eight months each. The total fees for the four years are, respectively, $393, $393, $348 and $356, and $100 additional each year for nonresidents. The registration for 1938-1939 was 246; graduates, 57. The next session begins Sept. 19, 1939, and ends May 31, 1940. The Dean is Bryan M. Riley, M.D.

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE, Forty-Second Street and Dewey Avenue.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The instruction of the first two years was given at Lincoln and of the last two at Omaha until 1913, when the work of all four years was transferred to Omaha. Coeducational since 1882. The faculty is composed of 72 professors and 55 lecturers and instructors, a total of 127. Three years of collegiate work are required for admission. The B.S. degree in medicine is conferred at the end of the second year. The fees for the four years, respectively, are $219, $214, $214 and $214. The registration for 1938-1939 was 316; graduates, 70. The next session begins Sept. 25, 1939, and ends June 3, 1940. The Dean is C. W. M. Poynter, M.D.

NEW YORK

Albany

ALBANY MEDICAL COLLEGE, 47 New Scotland Avenue.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed educational control. Coeducational since 1915. The faculty is composed of 69 professors and 103 instructors, assistants and others, a total of 172. A collegiate degree is required for admission. The curriculum covers four years of eight months each. The total fees are, respectively, $455, $430, $415 and $415. The registration for 1938-1939 was 112; graduates, 23. The next session begins Sept. 18, 1939, and ends June 10, 1940. The Dean is R. S. Cunningham, M.D.

Brooklyn

LONG ISLAND COLLEGE OF MEDICINE, 350 Henry Street.—Organized in 1858 as the Long Island College Hospital. The first class graduated in 1860 and the last class in 1930. Reorganized with a new charter in 1930 as the present institution. The first class graduated in 1931. Coeducational. It has a faculty of 119 professors, associate, assistant, clinical and assistant clinical professors, and 173 lecturers, associates, instructors, assistants and others, a total of 292. Ninety semester hours of collegiate work are required for admission. The course covers four years. The total fee for each of the four years is $610. The registration for 1938-1939 was 363; graduates, 90. The next session begins Sept. 11, 1939, for the fourth year and Sept. 25, for the other years, and ends June 8, 1940. The Dean is Jean Alonzo Curran, M.D.

Buffalo

UNIVERSITY OF BUFFALO SCHOOL OF MEDICINE, 24 High Street.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. Coeducational since organization. The faculty is composed of 87 professors and 198 associates, assistants and others, a total of 285. Two years of collegiate work are required for admission. The course covers four years of eight months each. The total fees are, respectively, $530, $525, $520 and $530. The registration for 1938-1939 was 257; graduates, 63. The next session begins Oct. 2, 1939, and ends June 8, 1940. The Dean is Edward W. Koch, M.D.

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, 630 West One Hundred and Sixty-Eighth Street.—The medical faculty of Columbia College, then known as King's College, was organized in 1767. Instruction was interrupted by the War of the Revolution. The faculty was reestablished in 1792 and merged in 1814 with the College of Physicians and Surgeons, which had received an independent charter in 1807. In 1860 the College of Physicians and Surgeons became the Medical Department of Columbia College. This merger became permanent by legislative enactment in 1891. Columbia College became Columbia University in 1896. The medical school has been coeducational since 1917. The faculty is composed of 252 professors and 524 instructors, demonstrators and others, a total of 776. Three years of collegiate work are required for admission. The work covers four years of eight months each. The total fees are, respectively, $545, $530, $530 and $550. The registration for 1938-1939 was 406; graduates, 89. The next session begins Sept. 21, 1939, and ends June 4, 1940. The Dean is Willard C. Rappleye, M.D.

NEW YORK MEDICAL COLLEGE, FLOWER AND FIFTH AVENUE HOSPITALS, 1 East 105th Street.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title New York Homeopathic Medical College was assumed in 1869; the title New York Homeopathic Medical College and Hospital in 1887; the title New York Homeopathic Medical College and Flower Hospital in 1908; the title New York Medical College and Flower Hospital in 1936; the present title of New York Medical College, Flower and Fifth Avenue Hospitals, June 22, 1938. The first class graduated in 1861. Coeducational since 1919. A baccalaureate degree or its equivalent required for admission. The course covers four years of eight months each. It has a faculty of 68 professors and associate professors, 25 assistant professors, and 228 lecturers and assistants, a total of 321. The total fees are, respectively, $645, $635, $635 and $665. The registration for 1938-1939 was 274; graduates 66. The next session begins Sept. 18, 1939, and ends June 7, 1940. The Dean is Claude A. Burrett, M.D.

NEW YORK UNIVERSITY COLLEGE OF MEDICINE, 477 First Avenue.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. Named University and Bellevue Hospital Medical College from 1898 to February 1935 when it was changed to New York University College of Medicine. First class graduated in 1899. Coeducational since 1919. The faculty is composed of 145 professors, associate, assistant, clinical and assistant clinical professors, and 367 lecturers, instructors and others, a total of 512. The course covers four years. Entrance requirements are that all candidates must have completed three full years of study in an approved college of arts and sciences. The fees for each of the four years are $600. The next session begins Sept. 13, 1939, and ends June 5, 1940. The registration for 1938-1939 was 495; graduates, 124. The Dean is Currier McEwen, M.D.

CORNELL UNIVERSITY MEDICAL COLLEGE, 1300 York Avenue.—Organized in 1898. Coeducational since organization. The first year was given to approximately one-third of the class at Ithaca, but in 1938 this branch was discontinued and all work is now given in New York City. The faculty is composed of 126 professors and 306 assistants, lecturers, instructors, and others, a total of 432. All candidates for admission must be graduates of approved colleges or scientific schools, or seniors of approved colleges that will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the baccalaureate degree on the completion of the first year's work. The fees are, respectively: $620, $510, $515 and $525. The registration for 1938-1939 was 286; graduates, 63. The next session begins Sept. 18, 1939, and ends June 5, 1940. The Dean is William S. Ladd, M.D.

Rochester

UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE AND DENTISTRY, 260 Crittenden Boulevard.—Organized in 1925 as the Medical Department of the University of Rochester. Coeducational since organization. The faculty is composed of 66 professors, 187 lecturers, assistants, instructors and others, a total of 253. The work embraces a graded course of four years of nine months each. Three years of collegiate work are required for admission. The total fees for each year are $500. The registration for 1938-1939 was 188; graduates, 43. The next session begins Sept. 18, 1939, and ends June 15, 1940. The Dean is George Hoyt Whipple, M.D.

Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE, 766 Irving Avenue.—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875, when a compulsory three-year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Coeducational since organization. The faculty is composed of 48 professors and 167 associate and assistant professors, lecturers and instructors, a total of 215. Three years of a recognized college course are required for admission. The course covers four years of thirty-four weeks each. The fee for each of the first three years is $500; for the fourth year, $510. The enrolment for 1938-1939 was 177; graduates, 45. The next session begins Sept. 21, 1939, and ends June 3, 1940. The Dean is H. G. Weiskotten, M.D.

NORTH CAROLINA

Durham

DUKE UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1925. The first class was admitted, Oct. 1, 1930. Coeducational. The faculty is composed of 12 professors and 137 associate and assistant professors, lecturers, instructors and assistants, a total of 149. The entrance requirements are ninety hours of collegiate work. The academic year consists of four quarters of eleven weeks each. Students either may study four quarters each year after the first year, and if satisfactory will receive the M.D. certificate after three and one quarter calendar years, or three quarters in each year, and if satisfactory will be graduated after four calendar years. The B.S. degree in medicine may be conferred for special work after six quarters. Students are urged to spend three years in hospital or laboratory work after graduation and must give assurance satisfactory to the executive committee that they will spend at least two years. The fees are $450 for each year of three quarters. The registration for 1938-1939 was 263; graduates, 64. The next session begins Sept. 28, 1939, and ends June 8, 1940. The Dean is Wilbert C. Davison, M.D.

OHIO

Cincinnati

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE, Eden and Bethesda Avenues. Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged with the University when the title of Ohio-Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Coeducational since organization. Candidates for admission to the freshman class must present three years of college preparation of not less than ninety hours. All candidates taking premedical work at the College of Liberal Arts, University of Cincinnati, must sign up for the seven-year combined course, and at the end of one year of satisfactory work in the College of Medicine the B.S. degree is granted by the College of Liberal Arts. The faculty consists of 112 professors, associate and assistant professors, 350 instructors and others, a total of 462. The course covers four years of eight months each, on the completion of which the M.B. degree is granted. A year's internship in an approved hospital is required, on completion of which the M.D. degree is granted. The fees are $485 a year for legal residents of Cincinnati, plus laboratory fees; $50 additional for those not legal residents of Cincinnati. The registration for 1938-1939 was 293; graduates, 71. The next session begins Sept. 22, 1939, and ends June 7, 1940. The Acting Dean is Stanley Dorst, M.D.

Cleveland

WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE, 2109 Adelbert Road.—Organized in 1843 as the Cleveland Medical College in cooperation with Western Reserve College. The first class graduated in 1844. It assumed the present title in 1881. In 1910 the Cleveland College of Physicians and Surgeons was merged. Coeducational since 1919. The faculty includes 88 professors and 231 lecturers, assistants and others, a total of 319. The curriculum covers three years of nine months each and one year of ten months. Three years of collegiate work are required for admission and a baccalaureate degree for graduation. The total fees are, respectively, $442, $430, $415 and $425. The registration for 1938-1939 was 266; graduates, 64. The next session begins Sept. 21, 1939, and ends June 12, 1940. The Dean is Torald Sollmann, M.D.

Columbus

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE, Neil and Eleventh Avenues.—Organized in 1907 as the Starling-Ohio Medical College by the union of Starling Medical College (organized in 1847 by charter

granted by the State Legislature changing the name from Willoughby Medical College, which was chartered March 3, 1834) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. Coeducational since organization. The faculty consists of 66 professors, associate and assistant professors, 92 lecturers, instructors, demonstrators and others, a total of 158. Three years of collegiate work are required for admission. The course covers four years of thirty-four weeks each. Tuition fees are $327 for the first year, $231, $231 and $312 for each of the other three years for residents of Ohio, and $150 additional for nonresidents. The registration for 1938-1939 was 306; graduates, 81. The next session begins Oct. 3, 1939, and ends June 10, 1940. The Dean is J. H. J. Upham, M.D.

OKLAHOMA

Oklahoma City

UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE, 801 East Thirteenth Street.—Organized in 1900. Until 1910 gave only the first two years of the medical course at Norman, Oklahoma, after which a clinical department was established at Oklahoma City. The first class graduated in 1911. Coeducational since organization. Since September, 1928, the entire four-year course has been given in Oklahoma City. It has a faculty of 27 professors, 26 associate professors, 20 assistant professors, 37 associates, 16 lecturers, 35 instructors, and 22 assistants, a total of 183. Three years of college work are required for admission. The B.S. in Medicine degree will not be conferred after June 3rd, 1940. The course covers four years of nine months each. Fees: $50 "Maintenance and Incidental Fee" per semester, beginning with the freshman class of 1939-1940. Other annual course fees average $128, $95, $53 and $58, in the order given, beginning with the freshman year. For students not residents of Oklahoma there is a tuition charge of $350 a year, plus laboratory and course fees as indicated for the different years. The registration for 1938-1939 was 226; graduates, 52. The next session begins September 18, 1939, and ends June 3, 1940. The Dean is Robert U. Patterson, M.D., C.M.

OREGON

Portland

UNIVERSITY OF OREGON MEDICAL SCHOOL, Marquam Hill.—Organized in 1887. The first class graduated in 1888, and a class graduated each subsequent year except 1898. The Willamette University Medical Department was merged in 1913. Coeducational since organization. It has a faculty of 91 professors and 164 lecturers, assistants and others, a total of 255. Entrance requirements are three years of collegiate work. The course covers four years of thirty-three weeks each. The total fees are, respectively, $320, $315, $310 and $316 for residents of Oregon, and $60 a year additional for nonresidents. The registration for 1938-1939 was 253; graduates, 63. The next session begins Oct. 2, 1939, and ends June 7, 1940. The Dean is Richard B. Dillehunt, M.D.

PENNSYLVANIA

Philadelphia

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF PHILADELPHIA, 235 North Fifteenth Street.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with The Hahnemann Medical College of Philadelphia, taking the latter title. Assumed present title in 1885. The first class graduated in 1849. Three years of collegiate work in a college of arts and sciences are required for admission. It has a faculty of 90 professors and 165 lecturers, instructors, and others, a total of 255. The work covers four years of eight months each. Fees are, respectively, $515, $512, $512 and $535. The registration for 1938-1939 was 553; graduates, 134. The next session begins Oct. 2, 1939, and ends June 6, 1940. The Dean is William A. Pearson, M.D.

JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA, 1025 Walnut Street.—Organized in 1825 as the Medical Department of Jefferson College, Canonsburg, Pa. It was chartered with its present title in 1838. Classes have been graduated annually beginning 1826. In 1838 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees. It has a faculty of 83 professors, associate and assistant professors and 192 associates, lecturers, demonstrators and instructors, a total of 275. Four years of college work and a bachelor's degree are required for admission. The course of study covers four years of eight and one-half months each. The total fees are, respectively, $450, $440, $430 and $430. The registration for 1938-1939 was 493; graduates, 112. The next session begins Sept. 20, 1939, and ends June 7, 1940. The Dean is Henry K. Mohler, M.D.

TEMPLE UNIVERSITY SCHOOL OF MEDICINE, 3400 North Broad Street.—Organized in 1901. The first class graduated in 1904. Coeducational since organization. The faculty numbers 33 professors and 196 associates, assistants and others, a total of 229. Three years of collegiate work are required for admission. The fees for each of the four years, respectively, are $485, $455, $435 and $455. The registration for 1938-1939 was 448; graduates, 117. The next session begins Sept. 20, 1939, and ends June 13, 1940. The Dean is William N. Parkinson, M.D.

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE, Thirty-Sixth and Pine Streets.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772 and 1775-1779, inclusive. The original title was the Department of Medicine, College of Philadelphia. The present title was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. Coeducational since 1914. The faculty consists of 115 professors, associate and assistant professors, and 380 lecturers, associates, instructors and others, a total of 495. Three years of collegiate work are required for admission. The course covers four years of thirty-three weeks each. The tuition fee is $500 each year, with a deposit fee of $15, a general fee including student health of $15 and a matriculation fee of $5. The registration for 1938-1939 was 486; graduates, 122. The next session begins Sept. 25, 1939, and ends June 12, 1940. The Dean is William Pepper, M.D.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, Henry Avenue and Abbottsford Road, East Falls.—Organized in 1850. Classes were graduated in 1852 and in all subsequent years except 1862. It has a faculty of 49 professors and 76 assistants, lecturers, and others, in all, 125. Three years of collegiate work are required for admission. The curriculum covers four years of eight and one-half months each. Total fees are, respectively, $440, $433, $433 and $455. The registration for 1938-1939 was 100; graduates, 21. The next session begins Sept. 20, 1939, and ends June 12, 1940. The Dean is Martha Tracy, M.D.

Pittsburgh

UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE, Bigelow Boulevard.—Organized in 1886, as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. Coeducational since 1899. The faculty is composed of 31 professors and 306 associates, assistants and others, a total of 337. Entrance requirements are two years of collegiate work. The course of study is four years of eight months each. The total fees are $500 each year. The registration for 1938-1939 was 234; graduates, 51. The next session begins Sept. 18, 1939, and ends June 12, 1940. The Dean is W. S. McEllroy, M.D.

SOUTH CAROLINA

Charleston

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, 16 Lucas Street.—Organized in 1823 as the Medical College of South Carolina. The first class graduated in 1825. In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838. Classes were graduated in all years except 1862 to 1865, inclusive. In 1913, by legislative enactment, it became a state institution. Coeducational from 1895 to 1912, when privileges for women were withdrawn, being restored in 1917. It has a faculty of 46 professors and 45 associates, instructors and others, a total of 91. The course covers four years of eight months each. Three years of collegiate work are required for admission. The total fees are $272 each year. Fees for nonresidents of the state, $422 each year. The enrolment for 1938-1939 was 160; graduates, 43. The next session begins Sept. 28, 1939, and ends June 6, 1940. The Dean is Robert Wilson, M.D.

TENNESSEE

Memphis

UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE, 874 Union Avenue.—Organized in 1876 at Nashville as Nashville Medical College. First class graduated 1877, and a class graduated each subsequent year. Became Medical Department of University of Tennessee in 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis, where it united with the College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. Coeducational since 1911. The faculty includes 104 professors and 144 assistants, instructors and others, a total of 248. Two years of collegiate work are required for admission. The B.S. degree in medicine is conferred at the end of the second year. The fees are $120 quarterly. For residents of the state the charge is reduced $50 each quarter. The registration for 1938-1939 was 425; graduates, 94. During the academic year of 1939-1940 the quarters begin July 7, Sept. 25, Dec. 29 and March 18, and end Sept. 23, Dec. 16, March 16 and June 8. The Dean is O. W. Hyman, Ph.D.

Nashville

MEHARRY MEDICAL COLLEGE, Eighteenth Avenue North and Heffernan Street. (For Negro Youth).—This school was organized in 1876 as the Meharry Medical Department of Central Tennessee College, which became Walden University in 1900. First class graduated in 1877. Obtained new chapter independent of Walden University in 1915. Coeducational since 1876. The faculty is made up of 46 professors and 30 instructors and lecturers, 76 in all. Two years' work in a college of liberal arts is required for admission. The curriculum covers four years of thirty-two weeks each. Tuition fees are, respectively, $300, $280, $280 and $290 each year. The registration for 1938-1939 was 183; graduates 30. The next session begins October 2, 1939, and ends May 31, 1940. The Dean is Edward L. Turner, M.D.

VANDERBILT UNIVERSITY SCHOOL OF MEDICINE, Twenty-First Street at Edgehill.—This school was founded in 1874. The first class graduated in 1875. Coeducational since September 1925. The faculty numbers 230. For matriculation, students must be graduates of collegiate institutions of recognized standing or seniors in absentia, who will receive the bachelor degree from their college after having completed successfully at least one year of work in the school of medicine. The course covers four years of nearly nine months each. The total fees are, respectively, $415, $415, $415 and $420. The registration for 1938-1939 was 201; graduates, 49. The next session begins Sept. 25, 1939, and ends June 12, 1940. The Dean is Waller S. Leathers, M.D.

TEXAS

Dallas

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, 810 College Avenue.—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University. It acquired the charter of Dallas Medical College in 1904. Coeducational since organization. The first class graduated in 1901. The faculty consists of 107 professors and 100 instructors and assistants, a total of 207. Entrance requirements are three years of collegiate work. The course covers four years of eight months each. The fees are, respectively, $414, $404, $399 and $424. The registration for 1938-1939 was 300; graduates, 70. The next session begins Oct. 2, 1939, and ends June 3, 1940. The Dean is W. H. Moursund, M.D.

Galveston

UNIVERSITY OF TEXAS SCHOOL OF MEDICINE, 912 Avenue B.—Organized in 1891. The first class graduated in 1892. Coeducational since organization. It has a faculty of 45 professors and 26 instructors and lecturers, a total of 71. The curriculum covers four years of eight months each. The entrance requirement is three years of collegiate work. The total fees are, respectively, $88, $92, $100 and $102. There is a matriculation fee of $50 for each year. The registration for 1938-1939 was 377; graduates, 92. The next session begins Oct. 2, 1939, and ends May 31, 1940. The Dean is John W. Spies, M.D.

VERMONT

Burlington

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. Coeducational since 1920. It has a faculty of 47 professors and 34 lecturers, instructors, preceptors and others, a total of 81. Three years of collegiate work are required for admission. The course of study covers four years of nine months each. For residents of Vermont the tuition fee is $300 each session. Nonresidents are charged an additional $150 each session. A $25 fee is charged for the doctor's degree. The registration for 1938-1939 was 137; graduates, 38. The next session begins Sept. 13, 1939, and ends June 10, 1940. The Chairman of the Committee of Administration is E. H. Buttles, M.D.

VIRGINIA

Charlottesville

UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. Coeducational since the session of 1920-1921. It has a faculty of 44 professors and 37 lecturers, instructors, assistants and others, a total of 81. Three years of college work are required for admission. For residents of Virginia the total fees are, respectively, $414, $391, $366 and $361. Nonresidents are charged an additional $50 each year. The registration for 1938-1939 was 246; graduates, 51. The next session begins Sept. 14, 1939, and ends June 10, 1940. The Dean is Harvey Ernest Jordan, Ph.D.

Richmond

MEDICAL COLLEGE OF VIRGINIA, Twelfth and Marshall Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Coeducational since 1918. Classes were graduated in 1839 and in all subsequent years. It has a faculty of 66 professors and 130 lecturers, instructors and others, a total of 196. Three years of collegiate work are required for admission. The course covers four years of eight and one-half months each. Total fees are, respectively, $344, $344, $329 and $361. Nonresidents are charged an additional $125 each year. The registration for 1938-1939 was 297; graduates, 61. The next session begins Sept. 5, 1939, for the first year class; Sept. 18, 1939, for all other classes and ends June 4, 1940. The Dean is Lee E. Sutton Jr., M.D.

WISCONSIN

Madison

UNIVERSITY OF WISCONSIN MEDICAL SCHOOL, 408 North Charter Street.—Organized in 1907. Gave only the first two years of the medical course until 1925, when the clinical years were added. Coeducational since organization. Three years of collegiate work are required for admission. The B.S. degree in medical science is conferred at the end of the first year. It has a faculty of 64 professors and 67 lecturers, instructors and others, a total of 131. The fees are, respectively, $212, $192, $165 and $110. An additional fee of $200 each year is charged nonresidents. The registration for 1938-1939 was 270; graduates, 52. The next session begins Sept. 20, 1939, and ends June 17, 1940. The Dean is William S. Middleton, M.D.

Milwaukee

MARQUETTE UNIVERSITY SCHOOL OF MEDICINE, 561 North Fifteenth Street.—Organized in December 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. Coeducational since organization. It has a faculty of 175. Three years of collegiate work are required for admission. The curriculum covers four years of eight and a half months each, and one year's internship in an approved hospital. The fees are as follows: first year, $462; second year, $462; third year, $400; fourth year, $400. The registration for 1938-1939 was 313; graduates, 69. The next session begins Sept. 25, 1939, and ends June 12, 1940. The Dean is Eben J. Carey, M.D.

CANADA

Alberta

UNIVERSITY OF ALBERTA FACULTY OF MEDICINE, Edmonton.—Organized in 1913. Coeducational since organization. Has given the complete six-year medical course since 1924. The faculty includes 23 full time and 45 part time professors, instructors, assistants and others, a total of 68. Tuition for the first year is $150, for the second, third and fourth years, $215; for the fifth and sixth years, $225. The registration for 1938-1939 was 223; graduates, 32. The next session begins Sept. 26, 1939, and ends May 14, 1940. The Dean is Allan C. Rankin, M.D.

Manitoba

UNIVERSITY OF MANITOBA FACULTY OF MEDICINE, Mannatyne Avenue, Winnipeg. Organized in 1883 as Manitoba Medical College; first class graduated in 1886, and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. Coeducational since organization. The faculty includes 26 professors and 80 instructors and assistants, total of 106. Matriculation requirements include two years of collegiate work in the faculty of arts and science of a recognized university. The course extends over four years of eight months each and a hospital internship. The total fees are, respectively, $296, $291, $301, $301, $80. The registration for 1938-1939 was 212; graduates, 56. The next session begins Sept. 22, 1939, and ends May 17, 1940. The Dean is A. T. Mathers, M.D.

Nova Scotia

DALHOUSIE UNIVERSITY FACULTY OF MEDICINE, Morris Street, Halifax.—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College, in 1885. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the university. First class graduated in 1872. Coeducational since 1871. It has a faculty of 34 professors and 34 demonstrators, lecturers and others, a total of 68. Requires for matriculation two years of arts. The medical course covers four years and a hospital internship of one year. The fees are $317, $322, $317, $317 and $307 for each year, respectively; $250 additional registration fee payable by students outside the British Empire. The registration for 1938-1939 was 179; graduates, 37. The next session begins Sept. 12, 1939, and ends May 14, 1940. The Dean is H. G. Grant, M.D.

Ontario

QUEEN'S UNIVERSITY FACULTY OF MEDICINE, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 60. The fee for the first year is $233, and $255 for each of the other five years. The course covers six years of thirty teaching weeks each. The registration for 1938-1939 was 282; graduates, 43. The next session begins Sept. 28, 1939, and ends May 17, 1940. The Dean is Frederick Etherington, M.D.

UNIVERSITY OF WESTERN ONTARIO MEDICAL SCHOOL, Ottaway Avenue, London.—Organized in 1881 as the Western University Faculty of Medicine; first class graduated in 1883, and a class graduated each subsequent year. Present title in 1923. The medical school has been under the control of the Board of Governors of the University of Western Ontario since 1913. Coeducational since 1913. The faculty numbers 88. The course of study covers six years of eight months each. The total fees to residents of Canada for the last four years, respectively, are $264, $260, $268 and $268; nonresidents are charged $488, $484, $492 and $492 for each of the last four years. The registration for 1938-1939 was 212; graduates, 29. The next session begins Sept. 18, 1939, and ends May 18, 1940. The Dean is F. J. H. Campbell, M.D.

UNIVERSITY OF TORONTO FACULTY OF MEDICINE, Toronto.—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University Medical Department, and in 1903 it absorbed the Medical Faculty of Trinity University. Coeducational since 1903. The course of study covers six years of eight months each. The B.Sc. (Med.) degree is conferred at the end of the third or sixth year. It has a faculty of 74 professors and 353 lecturers, associates and others, a total of 427. The fees are $226 for the first year; for the second, $401; $296 for the third year; $321 for the fourth and fifth years, and $353 for the sixth year. The registration for 1938-1939 was 798; graduates, 129. The next session begins Sept. 26, 1939, and ends May 18, 1940. The Dean is W. E. Gallie, M.D.

Quebec

LAVAL UNIVERSITY FACULTY OF MEDICINE, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 the Laval University Faculty of Medicine; first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 81. The fees for each of the medical years are $175 for residents of Canada. Nonresidents are charged an extra fee of $175 each year. The premedical requirement is a B.A. degree or its equivalent. The registration for 1938-1939 was 299; graduates 32. The next session begins Sept. 20, 1939, and ends May 31, 1940. The Dean is P. C. Dagneau, M.D.

MCGILL UNIVERSITY FACULTY OF MEDICINE, 3640 University Street, Montreal.—Founded in 1823 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-1839, owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop's College. Coeducational since 1919. Three years of collegiate work are required for admission. The length of the

medical course is four years followed by one year of internship. The faculty consists of 58 professors and 154 lecturers and others, a total of 212. The total fees for each of the four medical years are $391 plus $100 for non-British subjects. The registration for 1938-1939 was 456; graduates, 99. The next session begins Sept. 6, 1939, and ends May 28, 1940. The Dean is A. Grant Fleming, M.D.

UNIVERSITY OF MONTREAL, FACULTY OF MEDICINE, 1265 St. Denis Street, Montreal.—Organized in 1843 as the Montreal School of Medicine and Surgery. In 1891, by Act of Parliament, the Medical Faculty of Laval University (organized in 1878) was absorbed. Present name by Act of Parliament in 1920. A class was graduated in 1843 and each subsequent year. Coeducational since 1925. The faculty numbers 133. The B.A. or B.S. degree, or its equivalent, is a prerequisite to the premedical year, which precedes a five year medical course. The total fees for each of the five years respectively are $243, $227, $262, $240 and $218. The registration for 1938-1939 was 205; graduates, 29. The next session begins Sept. 18, 1939, and ends June 15, 1940. The Dean is Albert LeSage, M.D.

DESCRIPTION OF SCHOOLS OF THE BASIC MEDICAL SCIENCES

ALABAMA

University (Tuscaloosa)

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE.—Organized in 1859 at Mobile as the Medical College of Alabama. Classes graduated in 1861 and subsequent years excepting 1862 to 1868, inclusive. Reorganized in 1897 as the medical department of the University of Alabama. Present title assumed in 1907, when all property was transferred to the University of Alabama. In 1920 clinical teaching was suspended and the medical school was removed to the university campus near Tuscaloosa. Coeducational since 1920. Minimum entrance requirements are three years of collegiate work. The course of study covers two years of thirty-six weeks each. The faculty includes 15 professors and 12 instructors, assistants, and others, a total of 27. The tuition fees are $271 each year. Each class is limited to fifty students. The registration for 1938-1939 was 101. The next session begins Sept. 13, 1939, and ends May 28, 1940. The Dean is Stuart Graves, M.D.

MISSISSIPPI

University

UNIVERSITY OF MISSISSIPPI SCHOOL OF MEDICINE.—Organized in 1903. Coeducational since organization. Gives only the first two years of the medical course. A clinical department was established at Vicksburg in 1908 but was discontinued in 1910 after graduating one class. The session extends over eight and one-half months. Entrance requirement is three years of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. The faculty includes 8 professors, 2 assistant professors, 1 associate professor, 2 adjunct professors, 16 instructors, assistants and others, a total of 29. The total fees for the first year are $353, and for the second year $325. The nonresident fee is $50 additional each year. The registration for 1938-1939 was 41. The next session begins Sept. 20, 1939, and ends June 3, 1940. The Dean is B. S. Guyton, M.D.

MISSOURI

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE.—Organized at St. Louis in 1845; was discontinued in 1855 but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. Coeducational since 1872. The faculty includes 19 professors and 16 instructors, lecturers and others, a total of 35. The entrance requirements are 90 semester hours of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. Total fees for the first year are $191, for the second, $170. Nonresidents of the state are not admitted. The registration for 1938-1939 was 72. The next session begins Sept. 11, 1939, and ends June 4, 1940. The Dean is Dudley S. Conley, M.D.

NEW HAMPSHIRE

Hanover

DARTMOUTH MEDICAL SCHOOL.—Organized by Dr. Nathan Smith in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Courses of the third and fourth year were discontinued in 1914. The faculty consists of 17 professors and 13 instructors, a total of 30. Three years of collegiate work and candidacy for the bachelor's degree are required for admission. The course covers nine calendar months in each year, or eight months of actual teaching. Candidates for the A.B. degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department. The tuition is $450 for each year. The registration for 1938-1939 was 40. The next session begins Sept. 21, 1939, and ends June 14, 1940. The Dean is John P. Bowler, M.D.

NORTH CAROLINA

Chapel Hill

UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. Coeducational since 1914. Three years of collegiate work are required for admission. The B.S. degree in medicine is conferred at the end of the first year. The faculty is composed of 13 professors and 8 instructors, a total of 21. The fees for each year are $295 for residents; nonresidents, an additional fee of $100. The registration for 1938-1939 was 64. The next session begins Sept. 14, 1939, and ends June 11, 1940. The Dean is Wm. deB. MacNider, M.D.

Wake Forest

WAKE FOREST COLLEGE SCHOOL OF MEDICAL SCIENCES.—Organized in 1902. The faculty numbers 11 professors, 2 assistant professors, 9 instructors, and 1 visiting lecturer, making a total of 23. Coeducational since 1927. The name was changed from the School of Medicine to the School of Medical Sciences in 1937, in view of the fact that it offers only the first two years of the medical course, which is made up largely of the medical sciences. Ninety semester hours of collegiate work are required for admission. The B.S. degree is given after the completion of the first year in the School of Medical Sciences, to those who do not already have that degree. Each annual course extends over nine months. The fees for each year are $300. The registration for 1938-1939 was 51. The next session begins Sept. 14, 1939, and ends May 27, 1940. The Dean is C. C. Carpenter, M.D.

NORTH DAKOTA

Grand Forks

UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE.—Organized in 1905. Offers only the first two years of the medical course. Coeducational since organization. Three years' work in a college of liberal arts is required for admission. The B.S degree in combined arts-medical course is conferred at the end of the second year. The faculty consists of 8 professors and 8 instructors, a total of 16. The fees are $80 each year for resident students and $165 for nonresidents. The registration for 1938-1939 was 48. The next session begins Sept. 19, 1939, and ends June 11, 1940. The Dean is H. E. French, M.D.

SOUTH DAKOTA

Vermillion

UNIVERSITY OF SOUTH DAKOTA SCHOOL OF MEDICAL SCIENCES.—Organized in 1907 as the University of South Dakota School of Medicine. Present title in 1938. Coeducational since organization. Offers only the first two years of the medical course. Three years' work in a college of liberal arts is required for admission. Students who complete the third year of premedical work in the College of Arts and Sciences at the University of South Dakota may apply the work of the first year of medicine to the A.B. degree. The B.S. degree is conferred at the end of the second year on those students who do not hold a previous Bachelor's degree. The faculty numbers 18. The tuition is $150 each year for residents and $250 for nonresidents. The registration for 1938-1939 was 42. The next session begins Sept. 20, 1939, and ends June 10, 1940. The Dean is Joseph C. Ohlmacher, M.D.

UTAH

Salt Lake City

UNIVERSITY OF UTAH SCHOOL OF MEDICINE, University Street.—Organized in 1906. Coeducational since organization. Gives only first two years of medical course. Each school year covers thirty-six weeks. Three years of collegiate work are required for admission. The medical faculty consists of 10 professors, 1 instructor, 20 lecturers and demonstrators, and 5 fellows, assistants, and technicians, a total of 36. The fees for each year are $229. There is a nonresident fee of $25 for each quarter. The registration for 1938-1939 was 59. The next session begins Sept. 25, 1939, and ends June 1, 1940. The Dean is L. L. Daines, M.D.

WEST VIRGINIA

Morgantown

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1902, gives the first two years of the medical course. Coeducational since organization. Three years of collegiate work are required for admission. The B. S. degree in medicine is conferred at the end of the second year. Session extends through nine months. Faculty numbers 24. Fees for residents of the state, $254; nonresidents, $404, each year. The registration for 1938-1939 was 51. The next session begins Sept. 19, 1939, and ends June 8, 1940. The Dean is Edward J. Van Liere, M.D.

CANADA

Saskatchewan

UNVERSITY OF SASKATCHEWAN SCHOOL OF MEDICAL SCIENCES, Saskatoon.—Organized in 1926. Coeducational. Offers the first two years of the medical course. Students require three more years of medicine for graduation. Two years of collegiate work are required for admission. The B.A. degree is conferred at the end of the second year. The medical faculty includes 7 professors and 3 lecturers and assistants, a total of 10. The fees are $150 for each year. The registration for 1938-1939 was 47. The next session begins Sept. 25, 1939, and ends May 10, 1940. The Dean is W. S. Lindsay, M.B.

HOSPITALS APPROVED FOR TRAINING INTERNS

The following general hospitals are considered in position to furnish acceptable internships of at least one year duration. They are also accredited for mixed residencies, which represent general assignments following an approved intern service.

The ✦ sign indicates additional approval for residencies in specialties.

HOSPITALS, 734. INTERNSHIPS, 7,832

Capacity, 234,618 Beds

The terms used in the column "Type of Internship" are defined as follows:

1. A full rotating internship provides training in medicine, surgery, pediatrics, obstetrics and the laboratories. (X-ray and laboratory duties may be combined with clinical services or constitute separate assignments.)
2. A mixed or limited rotating internship covers more than one of the clinical specialties but does not include all of the divisions listed above.
3. A straight internship is an assignment limited to a single department but may include the subspecialties of the same branch. Straight internships are now approved in the divisions of medicine, surgery, pediatrics and pathology.

ABBREVIATIONS

Army	United States Army	Fed	Federal	Part	Partnership
CyCo	City and County	Frat	Fraternal	Req	Required
Corp	Corporation unrestricted as to profit	Indiv	Individual	USPHS	United States Public Health Service
		NPAssn	Nonprofit association		
		Op	Optional		

Name of Hospital	Location	Control	Capacity	Classification of Patients (Percentage) Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
ALABAMA															
Hillman Hospital ✦	Birmingham	County	474	100			11,340	Rotating	20	24	July	No	Req	28	(c)
Norwood Hospital	Birmingham	NPAssn	226	3	8	89	5,269	Rotating	3	12	July	No	Req	27	$50
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company ✦	Fairfield	NPAssn	291			100	7,161	Rotating	10	12	July	No	Req	31	$25
ARIZONA															
Good Samaritan Hospital	Phoenix	Church	180	5	20	75	3,927	Rotating	3	12	July	No	None	20	$25
St. Joseph's Hospital	Phoenix	Church	208	10	30	60	7,536	Rotating	6	12	July	No	None	43	$25
ARKANSAS															
Baptist State Hospital ✦	Little Rock	Church	315	11	10	79	4,514	Rotating	4	12	July	No	None	31	$25
Little Rock City Hospital [1]	Little Rock	City	188	100			2,287	Rotating	5	12	July	No	Req	31	$25
St. Vincent's Infirmary	Little Rock	Church	150	24	18	58	4,452	Rotating	5	12	June	No	None	19	$25
CALIFORNIA															
General Hospital of Fresno County ✦	Fresno	County	518	100			8,486	Rotating	10	12	July	No	Req	34	$25
Glendale Sanitarium and Hospital [1]	Glendale	Church	212	1	50	49	3,091	Mixed	4	12	July	No	Req	16	$52.50(a)
Loma Linda Sanitarium and Hospital [1]	Loma Linda	Church	124	1	12	87	2,965	Rotating	4	12	July	(3)	Req	33	$53.30(a)
California Hospital [1]	Los Angeles	Church	292	7	73	20	8,204	Rotating	12	12	(d)	No	Req	22	$25
Cedars of Lebanon Hospital ✦	Los Angeles	NPAssn	328	19	4	77	7,137	Rotating	10	12	July	(4)	Req	43	$20
Los Angeles County Hospital [1✦]	Los Angeles	County	3,298	100			51,505	Rotating	120	24	July	No	Req	54	$10
Presbyterian Hosp.-Olmsted Memorial	Los Angeles	NPAssn	280		1	99	6,057	Mixed	5	12	July	No	Op	34	$25
Queen of Angels Hospital	Los Angeles	Church	259	14	18	68	6,895	Rotating	8	12	July	No	Req	16	$30
St. Vincent's Hospital ✦	Los Angeles	Church	265	10	5	85	6,498	Rotating	5	12	July	No	None	42	$40
Santa Fe Coast Lines Hospital	Los Angeles	NPAssn	150			*	2,197	Rotating	6	12	July	(5)	Req	69	$25
White Memorial Hospital [1✦]	Los Angeles	Church	198		46	54	6,579	Rotating	16	12	July	No	Req	51	$44(a)
U. S. Naval Hospital	Mare Island	Navy	496	77		23	2,611	Rotating	4	12	July	No	Req	71	(b)
Alameda County Hospital [1✦]	Oakland	County	420	92	1	7	12,425	Rotating	24	12	July	(6)	Op	58	$20
Orange County Hospital	Orange	County	365	98	2		3,396	Rotating	8	12	July	No	Req	54	$15-20
Collis P. and Howard Huntington Memorial Hospital ✦	Pasadena	NPAssn	198	3	17	80	5,385	Rotating	5	12	Jan. & July	(7)	Req	58	$30
Sacramento County Hospital	Sacramento	County	500	100			7,983	Rotating	10	12	July	No	Req	36	$35
San Bernardino County Charity Hosp.✦	San Bernardino	County	340	100			3,810	Rotating	9	12	July	(3)	Req	37	$25
San Diego County General Hospital ✦	San Diego	County	695	100			8,920	Rotating	13	12	July	No	Req	37	$20
U. S. Naval Hospital	San Diego	Navy	1,000	100			6,275	Rotating	8	12	Aug.	(8)	Req	80	(b)
Franklin Hospital [1]	San Francisco	NPAssn	251	1	1	98	4,759	Rotating	7	12	July	No	Req	38	$25
French Hospital	San Francisco	Frat	220	2	2	96	3,289	Rotating	7	12	July	No	Req	45	$25(e)
Hospital for Children [2✦]	San Francisco	NPAssn	246	6	19	75	5,250	Rotating	10	12	July	No	Req	25	No
Mary's Help Hospital ✦	San Francisco	Church	145	4	12	84	3,640	Rotating	5	12	July	No	Req	43	$25
Mount Zion Hospital [1✦]	San Francisco	NPAssn	189	21	13	66	3,969	Rotating	11	12	June	No	Req	58	$15
St. Luke's Hospital ✦	San Francisco	Church	225	8	8	84	5,154	Rotating	4	12	July	No	Op	61	$15(e)
St. Mary's Hospital	San Francisco	Church	325	2	20	78	9,521	Rotating	6	12	July	No	Req	21	$25
San Francisco Hospital [1✦]	San Francisco	CyCo	1,311	100			14,494	Rotating	53	12	July	(9)	Req	56	$10
Southern Pacific General Hospital	San Francisco	NPAssn	400			*	6,214	Rotating	15	12	July	(10)	Req	44	$30
Stanford University Hospitals [1✦]	San Francisco	NPAssn	322	1	52	47	9,162	Straight	15	12	July	No	Req	57	No
U. S. Marine Hospital	San Francisco	USPHS	478	100			3,972	Rotating	12	12	July	(11)	Op	66	(b)
University of California Hospital [1✦]	San Francisco	State	329	66		34	7,363	Straight	22	12	June	No	Req	75	$50 yr.
Santa Clara County Hospital ✦	San Jose	County	574	100			6,151	Rotating	8	12	July	No	Req	35	$20(e)
St. Francis Hospital	Santa Barbara	Church	115	20	9	71	1,786	Rotating	4	12	July	(12)	Req	66	$15
Santa Barbara Cottage Hospital [1]	Santa Barbara	NPAssn	185		1	99	3,180	Rotating	5	12	July	No	Op	56	$20
Santa Barbara General Hospital	Santa Barbara	County	245	98	1	1	2,323	Rotating	7	12	July	No	Req	65	$15
COLORADO															
Boulder-Colorado Sanit. and Hospital	Boulder	Church	107	2	29	69	1,136	Mixed	2	12	July	(13)	Req	43	$35
Beth-El General Hospital and Sanat.[1]	Colorado Springs	Church	217	20	15	65	2,378	Rotating	3	12	July	No	None	30	$25
St. Francis Hospital and Sanatorium	Colorado Springs	Church	161	10	50	40	1,086	Rotating	2	12	July	No	Req	74	$25
Colorado General Hospital [1✦]	Denver	State	180	62	38		3,436	Rotating	12	12	July & Aug.	No	Op	77	$20
Denver General Hospital ✦	Denver	CyCo	607	100			20,219	Rotating	15	18	Jan. & July	No	Req	52	$30
Mercy Hospital	Denver	Church	225	13	50	37	6,093	Rotating	5	12	July	No	Req	28	$25
Presbyterian Hospital	Denver	Church	175	4	27	69	4,461	Mixed	4	12	July	No	None	27	$25
St. Anthony Hospital	Denver	Church	184	10	78	12	3,580	Rotating	3	12	July	No	None	47	$25
St. Joseph's Hospital	Denver	Church	270	26	18	56	4,750	Rotating	5	12	July	No	Req	27	$25
St. Luke's Hospital ✦	Denver	Church	250		56	44	6,717	Rotating	8	12	July	No	Req	35	$25
CONNECTICUT															
Bridgeport Hospital	Bridgeport	NPAssn	400	39		61	10,220	Rotating	10	12	July	No	None	55	$10
St. Vincent's Hospital	Bridgeport	Church	380	45	40	15	6,335	Rotating	7	12	July	No	Req	27	$20
Danbury Hospital	Danbury	NPAssn	161	13	32	55	3,243	Rotating	4	12	July & Aug.	No	None	38	$40
Hartford Hospital ✦	Hartford	NPAssn	792	2	52	46	17,107	Rotating	24	24	July	No	None	51	(f)
Municipal Hospitals ✦	Hartford	City	340	100			5,452	Rotating	10	24	July	No	Req	47	$10
St. Francis Hospital	Hartford	Church	482	3	50	47	13,703	Rotating	10	12	July	No	Req	27	$20
Meriden Hospital [1]	Meriden	NPAssn	140		93	7	2,324	Rotating	4	12	July	No	Req	25	$15(z)
Middlesex Hospital	Middletown	NPAssn	160	52	26	22	2,947	Rotating	3	12	June & July	No	None	38	$20(g)

Numerical and other references will be found on page 841.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage: Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
CONNECTICUT—Continued															
New Britain General Hospital	New Britain	NPAssn	258	33	54	13	4,534	Rotating	6	12	July	No	Req	29	$30
Grace Hospital ✚	New Haven	NPAssn	287	10	45	45	6,822	Rotating	10	24	July	No	Req	39	$10
Hospital of St. Raphael	New Haven	Church	260	25	40	35	6,651	Rotating	8	12	July	No	Op	31	$20
New Haven Hospital [1]✚	New Haven	NPAssn	560	39	37	24	9,358	Mix&Str	30	12-20	(h)	No	Req	60	No
Lawrence and Memorial Associated Hospitals	New London	NPAssn	239	25	15	60	3,324	Rotating	4	12	July	No	Req	35	$22.50
Norwalk General Hospital [1]	Norwalk	NPAssn	182	17	48	35	4,786	Mixed	5	12	Jan. & July	No	Op	47	$50
William W. Backus Hospital	Norwich	NPAssn	182	5	75	25	3,096	Rotating	3	12	July & Sept.	No	Req	48	$30
Stamford Hospital	Stamford	NPAssn	258	10	67	23	4,705	Rotating	6	18	Jan. & July	No	Req	..	$45
St. Mary's Hospital	Waterbury	Church	264	21	44	35	9,053	Rotating	6	12	July	No	Req	28	$25
Waterbury Hospital	Waterbury	NPAssn	328	15	78	7	6,135	Rotating	7	12	July & Oct.	No	Req	47	$25
DELAWARE															
Delaware Hospital	Wilmington	NPAssn	225	53	10	37	4,518	Rotating	7	12	July	No	Req	37	$25
Homoeopathic Hospital ✚	Wilmington	NPAssn	202	35	15	50	4,558	Rotating	7	12	July	No	Req	23	$25
St. Francis Hospital	Wilmington	Church	122	43	8	49	2,136	Rotating	3	12	July	No	Req	41	$10
Wilmington General Hospital	Wilmington	NPAssn	218	45	1	54	3,640	Rotating	7	12	July	(14)	Req	34	$15(l)
DISTRICT OF COLUMBIA															
Central Disp. and Emergency Hospital ✚	Washington	NPAssn	280	16	8	76	7,628	Mixed	13	12	June	No	Req	25	$10
Freedmen's Hospital [1]✚ (col.)	Washington	Fed	376	85		15	5,969	Rotating	16	12	July & Oct.	No	Req	37	$10
Gallinger Municipal Hospital [1]✚	Washington	City	1,220	99		1	14,598	Rotating	24	12	July	No	None	41	$15
Garfield Memorial Hospital [1]✚	Washington	NPAssn	396		25	75	7,055	Mixed	10	12	July	No	Req	49	$10(j)
Georgetown University Hospital ✚	Washington	NPAssn	261	5	33	62	6,357	Rotating	12	24	July	(15)	Req	43	$10
George Washington University Hospital	Washington	NPAssn	114		15	85	2,654	Rotating	5	12	July	No	Req	53	$15
Providence Hospital ✚	Washington	Church	290	25	45	30	7,335	Rotating	9	24	July	No	Req	26	$10
St. Elizabeths Hospital, Medical and Surgical Department [1]	Washington	Fed	454	100			1,543	Rotating	12	24	(k)	(16)	Req	69	(b)
Sibley Memorial Hospital ✚	Washington	Church	461	6	10	84	8,074	Rotating	9	12	July	No	Req	46	$20
U. S. Naval Hospital	Washington	Navy	202	100			1,609	Mixed	9	12	July	No	Req	83	(b)
Washington Sanitarium and Hospital, [1] Takoma Park	Washington	Church	185	6	30	64	3,108	Mixed	3	12	July	No	Req	28	$60(a)
FLORIDA															
Duval County Hospital ✚	Jacksonville	County	240	100			4,810	Rotating	6	12	July	No	Req	55	$10
St. Luke's Hospital	Jacksonville	NPAssn	200	15		85	3,764	Rotating	5	12	July	No	Req	24	$25
St. Vincent's Hospital	Jacksonville	Church	240	16	1	83	5,217	Rotating	4	12	July	No	None	38	$30
James M. Jackson Memorial Hospital ✚	Miami	City	500	66		34	13,532	Rotating	12	12	July	No	Req	24	$20
Tampa Municipal Hospital	Tampa	City	311	50		50	6,004	Rotating	9	12	(m)	No	Op	22	$25
GEORGIA															
Crawford W. Long Memorial Hospital [1]	Atlanta	NPAssn	176	5	39	56	5,487	Rotating	4	12	July	No	None	29	$30
Georgia Baptist Hospital	Atlanta	Church	184	5	15	80	6,790	Rotating	6	12	July	(17)	None	16	$30
Grady Hospitals ✚	Atlanta	City	646	100			22,078	Rotating	56	12	July	No	Req	35	$15
Piedmont Hospital	Atlanta	Corp	164			100	3,781	Rotating	5	12	July	No	None	32	$25
St. Joseph's Infirmary ✚	Atlanta	Church	152	15	35	50	3,526	Rotating	3	12	July	No	Req	30	$30
University Hospital [1]✚	Augusta	City	373	40	10	50	8,744	Rotating	13	12	July	No	Req	37	$10(e)
Emory University Hospital	Emory University	NPAssn	260	2	13	85	5 691	Rotating	7	12	July	(18)	None	33	$30
Macon Hospital	Macon	CyCo	208	80		20	5,120	Rotating	6	12	July	No	Req	28	$25
ILLINOIS															
Alexian Bros. Hosp. (male patients only)	Chicago	Church	256	10	31	59	3,029	Rotating	7	12	July	(19)	None	27	$50
American Hospital [1]	Chicago	NPAssn	170	13	4	83	2,801	Rotating	4	12	July	No	None	33	No
Augustana Hospital ✚	Chicago	Church	300	14	30	56	4,889	Mixed	10	18	Jan. & July	No	Req	43	No
Belmont Community Hospital	Chicago	NPAssn	125	15	5	80	2,266	Rotating	4	12	July	No	None	34	...
Chicago Memorial Hospital	Chicago	NPAssn	108	28	54	18	2,487	Rotating	5	12	Apr. & July	No	Req	61	$25
Columbus Hospital	Chicago	Church	180	11	65	24	3,238	Rotating	4	12	July	No	None	67	$25
Edgewater Hospital	Chicago	NPAssn	140	14	10	76	3,698	Rotating	5	12	Jan. & July	No	None	34	$10
Englewood Hospital	Chicago	NPAssn	126	10	30	60	3,288	Rotating	6	12	Jan. & July	No	Req	35	$25
Evangelical Hospital	Chicago	Church	235	5	3	92	6,885	Mixed	6	12	July	No	None	24	$25
Garfield Park Community Hospital	Chicago	NPAssn	182	2	47	51	4,231	Rotating	6	12	July	No	Req	15	$10
Grant Hospital ✚	Chicago	NPAssn	253	6	10	84	6,502	Rotating	9	12	July	No	Req	39	No
Henrotin Hospital [1]	Chicago	NPAssn	140	5	70	25	2,784	Rotating	6	12	Jan. & July	No	Op	35	No
Holy Cross Hospital	Chicago	Church	171	20	30	50	3.934	Rotating	5	12	July	No	None	44	$15
Hospital of St. Anthony de Padua	Chicago	Church	240	17	13	70	5,635	Rotating	9	18	Jan. & July	No	None	20	$10
Illinois Central Hospital	Chicago	NPAssn	290	1	32	67	5,150	Rotating	9	12	(n)	No	Req	39	No
Illinois Masonic Hospital [1]	Chicago	Frat	184	30	10	60	2,993	Rotating	6	12	July	No	Req	42	No
Jackson Park Hospital	Chicago	Corp	222	20	5	75	3,624	Rotating	6	12	July	No	Req	32	$10
Loretto Hospital	Chicago	Church	202	10	15	75	.....	Rotating	5	12	July	No	Req	..	$10
Lutheran Deaconess Home and Hospital	Chicago	Church	218	16	18	66	5,109	Rotating	6	12	July	No	None	43	$15
Mercy Hospital—Loyola Univ. Clinics ✚	Chicago	Church	359	17	18	65	6,094	Rotating	10	12	July	No	Op	38	No
Michael Reese Hospital [1]✚	Chicago	NPAssn	740	44	34	22	16,943	Rotat&Str	49	12&24	Jan. & July	(20)	Req	57	No
Mother Cabrini Memorial Hospital	Chicago	Church	140	25	63	12	3,623	Rotating	4	12	July	No	None	36	$25
Mount Sinai Hospital [1]✚	Chicago	NPAssn	220	23	8	69	6,395	Rotating	9	12	June	(21)	Op	44	No
Norwegian-American Hospital [1]✚	Chicago	NPAssn	165	1		99	3,256	Rotating	6	12	July	No	None	49	$25-$35
Passavant Memorial Hospital [1]✚	Chicago	NPAssn	220	6	1	93	4,686	Mixed	9	12	(o)	No	Req	61	No
Presbyterian Hospital [1]✚	Chicago	Church	412	26	45	29	10,614	Mix&Str	24	16&20	(n)	No	Op	66	No
Provident Hospital [1]✚ (col.)	Chicago	NPAssn	160	68	5	27	3,804	Rotating	7	12	July & Sept.	No	Req	46	$10
Ravenswood Hospital ✚	Chicago	NPAssn	214	2	5	93	5,916	Rotating	7	12	July	No	Req	32	$25
Research and Educational Hospital [1]✚	Chicago	State	441	100			5,911	Rotating	13	12&18	Jan. & July.	No	Req	83	No
Roseland Community Hospital	Chicago	Corp	129	10	30	60	2,779	Rotating	4	12	July	No	Op	22	$50
St. Anne's Hospital	Chicago	Church	385	5	10	85	7,460	Rotating	7	12	July	No	Op	23	(p)
St. Bernard's Hospital	Chicago	Church	233	20	18	62	6,290	Rotating	6	12	July	No	None	24	No
St. Elizabeth Hospital	Chicago	Church	333	8	12	80	4,358	Rotating	7	12	July	No	Op	27	$10(p)
St. Joseph Hospital ✚	Chicago	Church	290	6	48	46	3,911	Rotating	8	12	July	No	Req	41	No
St. Luke's Hospital ✚	Chicago	NPAssn	612	8	5	87	10,331	Rotating	32	24	July	No	Req	67	No
St. Mary of Nazareth Hospital	Chicago	Church	250	17	16	67	6,358	Rotating	8	12	July	No	None	41	No
South Shore Hospital	Chicago	Corp	125	5	10	85	1,985	Rotating	3	12	July	No	None	32	$25
Swedish Covenant Hospital [1]	Chicago	Church	202	2	47	51	4,217	Rotating	6	12	July	No	None	19	$20
U. S. Marine Hospital	Chicago	USPHS	301	100			2,576	Mixed	6	12	July	(22)	Req	59	(b)
University Hospital	Chicago	NPAssn	121	38	10	52	2,818	Rotating	4	12	July	No	Req	30	$15
University of Chicago Clinics [1]✚	Chicago	NPAssn	682	39	43	18	10,622	Straight	33	12	Jan. & July	No	Req	81	No
Walther Memorial Hospital [1]	Chicago	Church	247	5	30	65	3,615	Mixed	6	12	July	No	None	34	$25
Washington Boulevard Hospital	Chicago	NPAssn	110	5	5	90	1,972	Mixed	6	18	(n)	No	Req	28	No
Wesley Memorial Hospital ✚	Chicago	Church	262	23	13	64	3,142	Rotating	8	12	Jan. & July	No	None	61	No
Women and Children's Hospital [2]	Chicago	NPAssn	150	30	14	56	2,278	Rotating	6	12	Jan. & July	No	Req	59	No
Woodlawn Hospital	Chicago	NPAssn	112	1	68	31	2,952	Rotating	4	12	Jan. & July	No	None	42	$25
St. Mary's Hospital	East St. Louis	Church	295	7	27	66	5,212	Rotating	5	12	July	No	None	34	$25
Evanston Hospital ✚	Evanston	NPAssn	260	15	50	35	8,246	Rotating	18	18	(q)	No	Req	81	No
St. Francis Hospital	Evanston	Church	353	4	57	39	7,733	Rotating	9	12	July	No	None	42	$20

Numerical and other references will be found on page 841.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage: Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
ILLINOIS—Continued															
Little Company of Mary Hospital	Evergreen Park	Church	201	7	7	86	4,457	Rotating	5	12	July	No	None	33	$25
St. Joseph's Hospital	Joliet	Church	264	10	15	75	5,981	Rotating	4	12	Jan. & July	No	None	20	$25
Moline Public Hospital [1]	Moline	City	166	3	3	94	3,130	Rotating	3	12	Jan. & July	(23)	Req	20	$25(j)
Oak Park Hospital [1]	Oak Park	Church	170	3	22	75	4,422	Rotating	6	12	July	No	None	19	$12.50(f)
West Suburban Hospital	Oak Park	NPAssn	427	7	19	74	8,097	Rotating	12	12	(r)	No	Req	37	No
Methodist Hospital of Central Illinois [1]+	Peoria	Church	240	5	15	80	6,328	Rotating	8	12	July	No	None	36	$25
St. Francis Hospital +	Peoria	Church	397	4	17	79	12,235	Rotating	8	12	Jan. & July	No	None	26	$20
St. Mary's Hospital	Quincy	Church	215	46	40	14	3,912	Rotating	3	12	July	No	None	17	$25
St. Anthony's Hospital	Rockford	Church	225	15	35	50	4,593	Rotating	4	12	July	(24)	Req	30	$20
St. Anthony's Hospital	Rock Island	Church	224	25	40	35	2,679	Mixed	2	12	July	No	Op	33	$25
INDIANA															
St. Catherine's Hospital	East Chicago	Church	312	2	37	61	6,177	Rotating	8	12	July	No	Op	26	$25
Lutheran Hospital	Fort Wayne	Church	185	10	8	82	3,181	Rotating	3	12	July	No	None	15	$25(s)
St. Joseph Hospital	Fort Wayne	Church	290	8	52	40	4,264	Rotating	4	12	July	No	None	35	$50
Methodist Episcopal Hospital	Gary	Church	100	10	30	60	3,139	Rotating	3	12	July	No	None	29	$25
St. Mary's Mercy Hospital	Gary	Church	305	3	36	61	6,820	Rotating	6	12	June	No	None	20	$25
St. Margaret Hospital	Hammond	Church	265	2	62	36	5,192	Rotating	7	12	July & Sept.	No	Op	23	$30
Indianapolis City Hospital +	Indianapolis	City	712	84	7	9	9,829	Rotating	34	24	July	No	Req	54	$10-20.83
Indiana University Hospitals [1]+	Indianapolis	State	504	83	3	14	9,554	Rotating	24	12	July	No	Req	57	$12.50
Methodist Episcopal Hospital +	Indianapolis	Church	579	5	30	65	22,363	Rotating	20	12	July	No	None	28	$10
St. Vincent's Hospital	Indianapolis	Church	298	18	50	32	6,368	Rotating	11	12	July	No	None	17	$15
St. Elizabeth Hospital	La Fayette	Church	254	12	78	10	4,835	Rotating	5	12	July	No	None	18	$30
Ball Memorial Hospital +	Muncie	NPAssn	242			*	4,919	Rotating	8	12	July	No	None	41	$30
Epworth Hospital	South Bend	NPAssn	192	14		86	4,787	Rotating	4	12	July	No	Req	32	$35
St. Joseph's Hospital	South Bend	Church	150	39	27	34	2,606	Mixed	2	12	July	No	Req	29	$25(s)
St. Anthony's Hospital [1]	Terre Haute	Church	197	39	38	23	3,014	Rotating	3	12	July	No	None	23	$25
IOWA															
Mercy Hospital [1]	Cedar Rapids	Church	167	13	38	49	3,012	Rotating	3	12	July	No	Req	24	$25
St. Luke's Methodist Hospital	Cedar Rapids	Church	150	21	49	30	3,812	Rotating	2	12	July	No	None	43	$25
Jennie Edmundson Memorial Hospital	Council Bluffs	NPAssn	136	2	38	60	2,237	Mixed	3	12	July	No	None	23	$25
Mercy Hospital	Council Bluffs	Church	163	12	68	20	3,031	Rotating	3	12	June	No	None	30	$25
Mercy Hospital	Davenport	Church	145	6	17	77	3,331	Rotating	3	12	July	No	None	18	$25
Broadlawns, Polk County Public Hosp. [1]	Des Moines	County	118	95		5	4,179	Rotating	8	12	July	(25)	Req	54	$25
Iowa Lutheran Hospital [1]	Des Moines	Church	145	1	4	95	4,222	Rotating	4	12	July	(25)	Req	23	$25(t)
Iowa Methodist Hospital	Des Moines	Church	264	5	5	90	8,002	Rotating	8	12	July	(25)	Req	60	$25(u)
Mercy Hospital [1]	Des Moines	Church	187	4	28	68	4,393	Rotating	5	12	July	(25)	Req	30	$25
University Hospitals [1]+	Iowa City	State	954	87	8	5	20,206	Rotating	20	12	July	No	Req	58	$100 yr.
St. Joseph Mercy Hospital	Sioux City	Church	240	2	17	81	4,330	Rotating	4	12	July	No	Op	37	$25
KANSAS															
Bethany Hospital	Kansas City	Church	152	16	7	77	2,540	Rotating	4	12	July	No	None	45	$25
Providence Hospital	Kansas City	Church	100	20	30	50	2,648	Rotating	2	12	July	No	None	45	$25
St. Margaret's Hospital	Kansas City	Church	250	20	75	5	4,008	Rotating	6	12	July	No	Op	57	$25
University of Kansas Hospitals [1]+	Kansas City	State	325	58	38	4	5,719	Rotating	9	12	July	(26)	Req	78	$15
St. Francis Hospital	Wichita	Church	300	20	25	55	6,028	Rotating	7	12	July	(27)	Req	54	$40
Wesley Hospital	Wichita	Church	251	11	7	82	5,347	Rotating	5	12	July	(28)	None	30	$25
Wichita Hospital	Wichita	Church	115	14	9	77	2,454	Rotating	3	12	July	(27)	None	31	$40
KENTUCKY															
St. Elizabeth Hospital	Covington	Church	416	29	51	20	5,357	Rotating	6	12	July	No	Req	16	$25
Good Samaritan Hospital	Lexington	Church	246	10	35	55	6,432	Rotating	6	12	July	No	Req	30	$25
St. Joseph Hospital +	Lexington	Church	250	2	31	67	7,311	Rotating	5	12	July	No	Req	34	$25
Kentucky Baptist Hospital	Louisville	Church	170	8	44	48	4,233	Rotating	3	12	July	(29)	None	23	$25
Louisville City Hospital [1]+	Louisville	City	586	98	2		10,833	Rotating	18	12	July	(30)	Req	31	$9.25
Norton Memorial Infirmary	Louisville	NPAssn	150	3	14	83	3,045	Rotating	4	12	July	(29)	Req	29	$20
St. Anthony's Hospital	Louisville	Church	163	24	51	25	3,193	Rotating	3	12	July	(31)	None	16	$35
St. Joseph Infirmary +	Louisville	Church	325	14	26	60	6,663	Rotating	5	12	July	No	None	22	$25
SS. Mary and Elizabeth Hospital	Louisville	Church	180	10	65	25	4,037	Mixed	3	12	July	No	None	16	$40
LOUISIANA															
Charity Hospital [1]+	New Orleans	State	3,000	100			55,859	Rotating	180	12	July	No	Req	42	$10
Flint Goodridge Hospital of Dillard University (col.)	New Orleans	NPAssn	100	40	17	43	1,617	Mixed	2	12	July	No	Req	24	$10
Hotel Dieu Sisters Hospital	New Orleans	Church	275	3	30	67	9,978	Rotating	10	12	July	No	None	33	$20(e)
Mercy Hospital—Soniat Memorial	New Orleans	Church	150	7	6	87	3,177	Rotating	4	12	July	No	Op	22	$25
Southern Baptist Hospital	New Orleans	Church	222	15	20	65	11,939	Rotating	11	12	July	No	None	25	$15(e)
Touro Infirmary [1]+	New Orleans	NPAssn	440	35	40	25	11,286	Rotating	18	12	July	No	Req	49	$10
U. S. Marine Hospital	New Orleans	USPHS	572	100			4,701	Rotating	12	12	July	(32)	Op	41	(b)
Highland Sanitarium	Shreveport	Corp	108	15	10	75	3,600	Mixed	2	12	July	No	None	20	$50
North Louisiana Sanitarium	Shreveport	Corp	110	10	20	70	2,451	Mixed	2	12	July	No	Req	44	$50
T. E. Schumpert Memorial Sanitarium	Shreveport	Church	148	25	25	50	3,400	Mixed	2	12	July	No	None	31	$50
Shreveport Charity Hospital	Shreveport	State	840	100			25,422	Rotating	25	12	July	No	None	33	$10
Tri-State Hospital [1]	Shreveport	Corp	110	2	8	90	3,707	Rotating	3	12	July	No	None	22	$50
MAINE															
Eastern Maine General Hospital	Bangor	NPAssn	173	20	21	59	4,303	Rotating	4	12	July	No	Req	21	$25
Central Maine General Hospital [1]	Lewiston	NPAssn	221	22	38	40	3,858	Rotating	5	12	July	No	Req	46	No
St. Mary's General Hospital	Lewiston	Church	162	5	60	35	2,893	Mixed	2	12	July	No	Req	28	$20
Maine General Hospital	Portland	NPAssn	291	46	31	23	6,019	Rotating	9	18	Jan. & July	No	Req	28	No
MARYLAND															
Baltimore City Hospitals [1]+	Baltimore	City	1,345	92	8		8,942	Rotat&Str	44	12	July	No	Req	48	No
Bon Secours Hospital +	Baltimore	Church	175	12	22	66	3,088	Rotating	4	12	July	(33)	Req	25	$15
Church Home and Infirmary [1]+	Baltimore	Church	186	25	59	16	3,307	Rotat&Str	7	12	July	No	Req	55	$15
Franklin Square Hospital +	Baltimore	NPAssn	207	54	28	18	3,048	Rotat&Str	8	12	July	No	Req	33	$10(e)
Hospital for Women [1]+	Baltimore	NPAssn	128	16	62	22	2,246	Rotating	5	12	July	No	Req	32	No
Johns Hopkins Hospital [1]+	Baltimore	NPAssn	945	44	10	46	17,644	Straight	68	12	July & Sept.	No	Req	76	No
Maryland General Hospital +	Baltimore	Church	281	28	19	53	4,487	Rotating	10	12	July	No	Req	23	$10
Mercy Hospital +	Baltimore	Church	342	62	13	25	8,969	Rotating	10	12	July	No	Req	32	No
Provident Hospital and Free Disp. + (col.)	Baltimore	Church	138	77	2	21	1,727	Rotating	6	12	July & Oct.	No	Req	18	$10
St. Agnes' Hospital +	Baltimore	Church	240	33	42	25	3,851	Rotating	5	12	July	(33)	Req	31	No
St. Joseph's Hospital +	Baltimore	Church	281	40	8	52	5,770	Rotating	6	12	July	No	Req	32	$10
Sinai Hospital +	Baltimore	NPAssn	283	38	10	52	5,804	Str&Mix	22	12	July	No	Req	38	No
South Baltimore General Hospital +	Baltimore	NPAssn	185	47	28	25	2,901	Rotating	5	12	July	No	Req	21	$20
Union Memorial Hospital +	Baltimore	NPAssn	345	19	48	33	6,592	Rotating	16	12	July	No	Req	33	No
U. S. Marine Hospital	Baltimore	USPHS	440	100			4,086	Rotating	12	12	July	(34)	Req	72	(b)
University Hospital [1]+	Baltimore	State	446	49	20	31	9,276	Rotating	24	24	July	No	Req	38	No
West Baltimore General Hospital +	Baltimore	Corp	200	43		57	3,605	Rotating	6	12	July	(35)	Req	33	$15

Numerical and other references will be found on page 841.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage: Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
MASSACHUSETTS															
Beverly Hospital	Beverly	NPAssn	141	2	49	49	4,245	Rotating	4	12	July & Sept.	No	Req	71	No
Beth Israel Hospital ✚	Boston	NPAssn	220	21	10	69	6,300	Straight	10	12-22	(v)	No	Req	40	No
Boston City Hospital [1]✚	Boston	City	2,508	88		12	42,750	Straight	95	Varies	Varies	No	Req	33	No
Carney Hospital ✚	Boston	Church	210	6	70	24	4,148	Straight	9	16&24	(w)	No	Req	24	No
Faulkner Hospital	Boston	NPAssn	165	15	61	24	3,891	Rotating	3	12	June & Oct.	No	Req	52	No
Long Island Hospital	Boston	City	629	100			1,760	Rotating	12	12	July	No	None	57	$25
Massachusetts General Hospital [1]✚	Boston	NPAssn	392	43	31	26	7,490	Straight	41	12-25	(n)	No	Req	52	No
Massachusetts Memorial Hospitals [1]✚	Boston	NPAssn	437	33	37	30	7,569	Mix&Str	14	16&24	Varies	No	Req	72	No
New England Hospital for Women and Children [2]	Boston	NPAssn	260	4	4	92	5,706	Rotating	9	12	(x)	No	Req	44	No
Peter Bent Brigham Hospital ✚	Boston	NPAssn	247	30	25	45	4,584	Straight	21	12-28	(q)	(36)	Req	60	No
St. Elizabeth's Hospital	Boston	Church	300	10	24	66	4,530	Mixed	7	21	(n)	No	Req	19	No
Brockton Hospital	Brockton	NPAssn	154	16	49	35	2,879	Rotating	4	12	June-Aug.	No	Req	39	$10(g)
Cambridge City Hospital	Cambridge	City	264	65	5	30	6,021	Rotating	10	26	(q)	No	Req	40	No
Cambridge Hospital [1]✚	Cambridge	NPAssn	279	25	50	25	4,542	Rotating	4	12	(n)	(37)	Req	36	No
Chelsea Memorial Hospital	Chelsea	Corp	140	40	40	20	2,294	Mixed	3	12	July & Nov.	(38)	None	27	$20
U. S. Naval Hospital	Chelsea	Navy	338	89		11	2,069	Rotating	..	12	July	...	None	64	(b)
Union Hospital	Fall River	NPAssn	202	5	46	49	3,110	Rotating	3	12	July	No	Req	21	$25
Burbank Hospital	Fitchburg	Corp	236	51	11	38	4,198	Rotating	4	12	July & Oct.	No	Req	29	$25
Haverhill Municipal Hospital (Hale)	Haverhill	City	208	48	25	27	5,005	Mixed	2	12	July	No	Req	25	No
Holyoke Hospital	Holyoke	NPAssn	164	4	33	63	2,317	Rotating	3	12	July	No	Req	29	$25
Providence Hospital	Holyoke	Church	200	8	56	36	5,447	Rotating	3	12	June	No	None	24	$25
Lawrence General Hospital	Lawrence	NPAssn	142	18	3	79	3,420	Rotating	3	12	July	No	Req	35	$10
Lowell General Hospital	Lowell	NPAssn	180	9	73	18	3,177	Rotating	3	12	July & Oct.	No	Req	25	$25
St. John's Hospital	Lowell	Church	187	12	50	38	3,950	Rotating	4	12	July	No	Req	28	(e)
St. Joseph's Hospital	Lowell	Church	140	7	60	33	3,094	Rotating	3	12	June	No	Req	19	$10
Lynn Hospital	Lynn	NPAssn	224	20	27	53	5,720	Rotating	6	12&18	June & July	No	Req	24	$25
St. Luke's Hospital	New Bedford	NPAssn	339	10	45	45	6,779	Rotating	6	12	July	No	Req	28	No
Newton Hospital	Newton	NPAssn	304	23	47	30	5,554	Rotating	6	12	June	No	Req	36	No
House of Mercy Hospital	Pittsfield	NPAssn	233	8	87	5	3,197	Rotating	3	12	July	No	Req	..	$40
St. Luke's Hospital	Pittsfield	Church	189	4	15	81	4,349	Rotating	2	12	June	No	Req	23	$25
Quincy City Hospital	Quincy	City	290	4	11	85	6,298	Rotating	9	18	Jan. & July	(39)	Op	31	$10
Salem Hospital	Salem	NPAssn	185	26	54	20	4 163	Rotating	4	12	July & Aug.	No	Req	34	$25
Mercy Hospital	Springfield	Church	365	6	19	75	6,324	Rotating	6	12	July	No	Req	21	$25
Springfield Hospital	Springfield	NPAssn	265	7	78	15	5,939	Rotating	9	18	Jan. & July	(40)	Req	27	No
Wesson Memorial Hospital	Springfied	NPAssn	125	1	34	65	2,554	Rotating	5	18	Jan. & July	(41)	Req	26	$25
Waltham Hospital	Waltham	NPAssn	268	4	79	17	3,074	Rotating	4	12	July	No	Req	33	$15(l)
Memorial Hospital ✚	Worcester	NPAssn	215	14	4	82	6 138	Rotating	9	18	July	No	Req	52	No
St. Vincent Hospital	Worcester	Church	250	7	4	89	6,280	Rotating	5	15	(n)	No	Req	27	$20
Worcester City Hospital ✚	Worcester	City	540	61	21	18	10,477	Rotating	18	24	(y)	No	Req	37	No
Worcester Hahnemann Hospital	Worcester	NPAssn	140	25	50	25	2,626	Rotating	3	12	July	No	None	38	$35
MICHIGAN															
St. Joseph's Mercy Hospital	Ann Arbor	Church	155	18	39	43	3,224	Rotating	3	12	July	No	Req	52	$25
University Hospital [1]✚	Ann Arbor	State	1,368	82		18	23,665	Rotating	35	12	July	No	Req	58	No
Leila Y. Post Montgomery Hospital	Battle Creek	Church	157	17	54	29	3,739	Rotating	2	12	July	No	Req	45	$25
Mercy Hospital [1]	Bay City	Church	161	15	24	61	4.494	Rotating	3	12	July	No	None	26	$25
City of Detroit Receiving Hospital [1]✚	Detroit	City	652	100			20,773	Rotating	28	12	July	(42)	Req	44	$25
Evangelical Deaconess Hospital	Detroit	Church	205	1	16	83	4,999	Rotating	6	12	July	(42)	Op	24	$20
Grace Hospital [1]✚	Detroit	NPAssn	545	30	37	33	15,864	Rotating	26	12	July & Sept.	(42)	Req	49	$25
Harper Hospital ✚	Detroit	NPAssn	685	12	34	54	16,794	Rotating	35	12	July	(43)	Op	26	No
Henry Ford Hospital ✚	Detroit	NPAssn	608	39		61	11,508	Rotating	25	12	Sept.	(42)	Op	53	$125(a)
Parkside Hospital [1] (col.)	Detroit	NPAssn	65			100	1,477	Mixed	2	12	July	(44)	Req	37	$25
Providence Hospital ✚	Detroit	Church	422	10	77	13	12,691	Rotating	17	12	July	(45)	None	39	$20
St. Joseph's Mercy Hospital	Detroit	Church	215		23	77	6,731	Rotating	6	12	July	No	Req	19	$25
St. Mary's Hospital	Detroit	Church	375	49	26	25	7,407	Rotating	12	12	July	No	Req	21	$20
Eloise Hospital—Dr. William J. Seymour Hospital [1]✚	Eloise	County	1,437	97	3		6,996	Rotating	25	12	July	(42)	Req	48	$25
Hurley Hospital ✚	Flint	City	467			*	7,929	Rotating	14	12	July	(46)	None	36	$20(e)
Blodgett Memorial Hospital [1]	Grand Rapids	NPAssn	150	20	60	20	3,489	Rotating	6	12	(n)	(47)	Req	40	$35
Butterworth Hospital ✚	Grand Rap'ds	NPAssn	320	12	54	34	5,594	Rotating	9	12	July	(47)	None	50	$20
St. Mary's Hospital	Grand Rapids	Church	255	35	34	31	7,328	Rotating	6	12	July	No	Req	24	$10-30
Highland Park General Hospital	Highland Park	City	190	1		99*	4,146	Rotating	6	12	July	No	Req	25	$15
W. A. Foote Memorial Hospital	Jackson	City	195	2	26	72	4,260	Rotating	4	12	July	No	Req	29	$50
Mercy Hospital [1]	Jackson	Church	140	3	30	67	3,627	Rotating	3	12	July	No	None	32	$50
Edward W. Sparrow Hospital [1]	Lansing	NPAssn	184	1	76	23	4,210	Rotating	4	12	July	No	None	28	$50
St. Lawrence Hospital	Lansing	Church	178	4	27	69	6.458	Rotating	4	12	July	(48)	None	46	$60
Hackley Hospital [1]	Muskegon	NPAssn	125	10	70	20	2,601	Rotating	3	12	July	No	None	26	$25
Mercy Hospital	Muskegon	Church	125	2	48	50	3,582	Rotating	2	12	July	No	None	27	$35
Pontiac General Hospital	Pontiac	City	132	10	30	60	4,426	Rotating	6	12	July	(49)	None	49	$25
St. Joseph Mercy Hospital	Pontiac	Church	210		38	62	4,032	Rotating	4	12	July	No	Req	63	$25
Saginaw General Hospital	Saginaw	NPAssn	152	18	17	65	3,445	Rotating	3	12	July	No	Req	40	$45
St. Mary's Hospital	Saginaw	Church	176	30	13	57	3,712	Rotating	3	12	July	No	Req	25	$45
MINNESOTA															
St. Luke's Hospital	Duluth	NPAssn	270	20	45	35	5,301	Rotating	8	12	July	(50)	Req	68	$20
St. Mary's Hospital	Duluth	Church	290	20	40	40	6,085	Rotating	8	12	July	(50)	Req	66	$20
Asbury Hospital [1]	Minneapolis	Church	140	10	30	60	3,686	Rotating	4	12	Jan. & July	No	None	34	$25
Fairview Hospital	Minneapolis	Church	225	10	30	60	4,414	Rotating	3	12	Jan. & July	(51)	Op	29	$25
Lutheran Deaconess Home and Hospital	Minneapolis	Church	180	3	12	85	4,076	Rotating	4	12	Jan. & July	No	None	30	$25
Minneapolis General Hospital [1]✚	Minneapolis	City	671	85	3	12	13,203	Rotating	36	12&18	Jan. & July	No	Req	42	$7.50
Northwestern Hospital [1]	Minneapolis	NPAssn	185	10	15	75	7,929	Rotating	5	12	July	No	None	40	$25(g)
St. Barnabas Hospital	Minneapolis	NPAssn	175	1	2	97	6,209	Rotating	3	12	July	No	None	33	$25
St. Mary's Hospital [1]	Minneapolis	Church	250	8	27	65	7,403	Rotating	6	12	July	No	Op	38	$15(i)
Swedish Hospital	Minneapolis	Church	267	2	35	63	6,405	Rotating	5	12	Jan. & July	No	Req	22	$25
University Hospitals [1]✚	Minneapolis	State	475	69	26	5	9,347	Straight	27	12	July	(52)	Req	81	No
Ancker Hospital ✚	St. Paul	CyCo	906	97	2	1	9,750	Rotating	32	12	July	No	Req	82	No
Bethesda Hospital [1]	St. Paul	Church	145	1	3	96	5,013	Rotating	3	12	July	(51)	None	35	$25
Charles T. Miller Hospital	St. Paul	NPAssn	260	23	36	41	6,093	Rotating	7	12	July	(53)	Req	57	No
St. Joseph's Hospital	St. Paul	Church	282	8	8	84	7,856	Rotating	8	12	July	(51)	Req	34	$25
MISSOURI															
St. Louis County Hospital ✚	Clayton	County	210	98	1	1	4,296	Rotating	6	12	July	No	Req	65	$25
Kansas City General Hospital ✚	Kansas City	City	500	100			11,242	Rotating	28	12	July	No	Req	81	$20
Kansas City General Hospital No. 2 [1] (col.)	Kansas City	City	274	100			3,626	Rotating	8	12	July	No	Req	30	$17.50
Menorah Hospital	Kansas City	NPAssn	166	7	41	52	3,179	Rotating	5	12	July	No	Req	39	$25
Research Hospital	Kansas City	NPAssn	225	3		97	5,703	Rotating	6	12	July	No	None	66	$25
St. Joseph Hospital ✚	Kansas City	Church	258	15	20	65	5,327	Rotating	6	12	July	No	None	70	$25
St. Luke's Hospital ✚	Kansas City	Church	213	10	25	65	4,709	Rotating	7	12	July	No	None	76	$25
St. Mary's Hospital ✚	Kansas City	Church	200	13	12	75	4,278	Rotating	5	12	July	No	None	65	$25
Trinity Lutheran Hospital	Kansas City	Church	136	1	5	94	2,752	Rotating	4	12	July	No	None	42	$25(t)

Numerical and other references will be found on page 841.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage: Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
MISSOURI—Continued															
Missouri Methodist Hospital [1]	St. Joseph	Church	170	2	28	70	3,701	Rotating	4	12	Jan. & July	No	Req	22	$50
St. Joseph's Hospital	St. Joseph	Church	180	7	37	56	2,937	Rotating	4	12	July	No	None	36	$30
Barnes Hospital [1]+	St. Louis	Church	350	12	6	82	10,167	Straight	27	12-18	Jan. & July	(54)	Op	57	No
Christian Hospital	St. Louis	NPAssn	120	5	5	90	1,659	Mixed	2	12	July	No	None	22	$25
De Paul Hospital +	St. Louis	Church	285	23	35	42	7,229	Rotating	9	12	July	No	Req	28	$25
Evangelical Deaconess Home and Hosp.	St. Louis	Church	200	2	7	91	5,825	Rotating	8	12	July	No	None	30	$20(g)
Homer G. Phillips Hosp. for Colored [1]+	St. Louis	City	738	100			10,571	Rotating	30	12	July	No	Req	43	$25(z)
Jewish Hospital +	St. Louis	NPAssn	283	29	45	26	6,048	Rotating	11	12	July	(55)	Req	30	$15
Lutheran Hospital	St. Louis	Church	180	4	20	76	4,259	Rotating	3	12	July	No	None	25	$25
Missouri Baptist Hospital	St. Louis	Church	430	10	10	80	5,250	Rotating	8	12	July	No	None	37	$25
St. Anthony's Hospital	St. Louis	Church	292	5	20	75	4,326	Rotating	7	12	July	(56)	Op	34	$25
St. John's Hospital	St. Louis	Church	320	23	4	73	5,900	Rotating	10	12	July	No	Req	23	$20
St. Louis City Hospital +	St. Louis	City	734	100			18,954	Rotating	71	12	July	(57)	Req	56	$10(z)
St. Luke's Hospital +	St. Louis	Church	239	14	33	53	4,820	Rotating	9	12	July	(58)	Req	46	$20
St. Mary's Group of Hospitals +	St. Louis	Church	706	44	33	23	11,628	Rotating	26	12	July	No	Req	49	No
St. Mary's Infirmary (col.)	St. Louis	Church	150	32	43	25	1,128	Rotating	3	12	July	No	None	33	$9
MONTANA															
St. James Hospital	Butte	Church	201	14	32	54	2,530	Rotating	2	12	July	No	Req	34	$50
NEBRASKA															
Bryan Memorial Hospital [1]	Lincoln	Church	120	1	7	92	2,255	Rotating	3	12	July	No	None	52	$25
Lincoln General Hospital [1]	Lincoln	City	176	10	20	70	3,112	Rotating	3	12	July	No	None	38	$25
St. Elizabeth Hospital	Lincoln	Church	199	20	62	18	3,807	Rotating	4	12	July	No	None	29	$35
Bishop Clarkson Memorial Hospital +	Omaha	Church	150		70	30	3,639	Rotating	4	12	June	No	None	39	$25
Creighton Memorial St. Joseph's Hosp. [1]+	Omaha	Church	405	10	72	18	7,656	Rotating	11	12	July	No	Req	33	$20(e)
Immanuel Deaconess Institute	Omaha	Church	146	3	18	79	4,472	Rotating	4	12	June	No	Req	29	$20(i)
Nebraska Methodist Episcopal Hospital	Omaha	Church	194	6	19	75	4,406	Rotating	5	12	July	No	None	42	$25
St. Catherine's Hospital	Omaha	Church	175	21	64	15	3,798	Rotating	4	12	July	No	None	17	$25
University of Nebraska Hospital +	Omaha	State	230	95	5		3,542	Rotating	12	12	July	No	Req	84	$25
NEW HAMPSHIRE															
Margaret Pillsbury General Hospital	Concord	NPAssn	152	36	6	58	1,988	Rotating	2	12	Jan. & July	No	None	46	$10
Mary Hitchcock Memorial Hospital [1]+	Hanover	NPAssn	196	21	45	34	4,447	Rotating	6	18&24	(n)	No	Req	85	$8.33
NEW JERSEY															
Atlantic City Hospital	Atlantic City	NPAssn	276	48	20	32	6,720	Rotating	8	12	July	No	Req	26	$25
Bayonne Hospital and Dispensary +	Bayonne	NPAssn	225	71	8	21	4,687	Rotating	6	18	(n)	No	Req	31	$25
Cooper Hospital +	Camden	NPAssn	375	42	25	33	6,780	Rotating	11	12	July	No	Req	34	$10
West Jersey Homeopathic Hospital	Camden	NPAssn	300	40	30	30	5,813	Rotating	8	12	June	No	Req	32	$10
East Orange General Hospital	East Orange	NPAssn	120	15	50	35	3,311	Rotating	3	12	July	No	Req	22	$25
Alexian Bros. Hosp. (male patients only)	Elizabeth	Church	165	44	7	49	2,276	Rotating	4	12	July	(59)	Req	26	$50
Elizabeth General Hosp. and Dispensary	Elizabeth	NPAssn	259	47		53	6,234	Rotating	8	24	July	No	Req	37	$15
St. Elizabeth Hospital [1]	Elizabeth	Church	262	34	3	63	5,114	Rotating	6	12	July	No	Req	25	$15
Englewood Hospital [1]	Englewood	NPAssn	238	50	30	20	5,340	Rotating	8	12&18	Jan. & July	No	Req	20	$20
Hackensack Hospital	Hackensack	NPAssn	292	58	26	16	7,997	Rotating	10	24	July	(60)	Req	34	$25
St. Mary's Hospital	Hoboken	Church	430	72	12	16	5,454	Rotating	9	12	July	No	Req	18	$25
Christ Hospital [1]	Jersey City	Church	206	15	20	65	4,872	Rotating	12	18	Jan. & July	No	Req	41	$25
Jersey City Hospital [1]+	Jersey City	City	1,200	92	5	3	27,885	Rotating	90	12-24	Jan. & July	No	Req	18	No
St. Francis Hospital	Jersey City	Church	240	50	30	20	3,938	Rotating	8	24	July	(61)	Req	23	$25
Monmouth Memorial Hospital	Long Branch	NPAssn	211	55	10	35	4,974	Rotating	9	18	Jan. & July	(62)	Req	20	$15
Mountainside Hospital +	Montclair	NPAssn	364	7	4	89	6,287	Rotating	12	24	July	No	Req	24	$15
All Souls Hospital	Morristown	Church	134	33	59	8	2,192	Rotating	3	12	July & Sept.	No	Req	30	$35
Morristown Memorial Hospital	Morristown	NPAssn	150	45	17	38	2,860	Rotating	4	12	June-Sept.	No	Req	24	$40
Burlington County Hospital +	Mount Holly	NPAssn	141	40	26	34	2,815	Rotating	4	12	July	(63)	Req	58	$25
Fitkin Memorial Hospital [1]	Neptune	NPAssn	214	77		23	4,903	Rotating	7	12	Jan. & July	No	Req	22	$25
Hospital of St. Barnabas and for Women and Children [1]	Newark	Church	250	2	9	89	3,737	Rotating	5	12	July	No	Req	23	$45
Newark Beth Israel Hospital +	Newark	NPAssn	455	8	40	52	11,328	Rotating	18	18	Jan. & July	No	Req	30	$15
Newark City Hospital [1]+	Newark	City	740	100			16,756	Rotating	24	24	(n)	No	None	28	$15-20
Newark Memorial Hospital	Newark	NPAssn	163	12	51	37	2,937	Rotating	4	12	July	No	Req	42	$25
St. James Hospital [1]	Newark	Church	125	18	20	62	2,654	Rotating	3	12	July	No	Req	31	$30
St. Michael's Hospital	Newark	Church	343	3	43	54	6,096	Rotating	6	12	July	(61)	Req	24	$30
St. Peter's General Hospital	New Brunswick	Church	200	43	5	52	4,323	Rotating	5	12	July & Sept.	No	Req	59	$240 yr.
Orange Memorial Hospital	Orange	NPAssn	400	21	16	63	8,063	Rotating	8	12	July	No	Req	27	$25
St. Mary's Hospital	Orange	Church	176	47	27	26	2,500	Rotating	4	12	July	No	Req	29	$25
Passaic General Hospital	Passaic	NPAssn	225	55	15	30	4,566	Rotating	4	12	July	No	Req	21	$25
St. Mary's Hospital	Passaic	Church	250	18	2	80	5,329	Rotating	4	12	July	No	Req	37	$25
Nathan and Miriam Barnert Memorial Hospital	Paterson	NPAssn	145	33	24	43	3,501	Rotating	5	12	July & Sept.	No	Req	20	$15-20
Paterson General Hospital	Paterson	NPAssn	320	39	4	57	6,872	Rotating	8	24	July	No	Op	24	$12.50(s)
St. Joseph's Hospital	Paterson	Church	447	41	13	46	7,040	Rotating	10	24	July	No	Req	24	$12.50-25
Muhlenberg Hospital	Plainfield	NPAssn	276	35	15	50	6,462	Rotating	6	12	July	No	Req	24	$25
Holy Name Hospital	Teaneck	Church	225	35	10	55	4,663	Rotating	6	12	July	No	Req	48	$40
Mercer Hospital	Trenton	NPAssn	250	46		54	4,981	Rotating	6	12	July	No	Req	21	$25
St. Francis Hospital	Trenton	Church	321	39	40	21	5,971	Rotating	8	12	July	No	Req	22	$25
William McKinley Memorial Hospital	Trenton	NPAssn	148	30	15	55	2,959	Rotating	4	12	July	No	Req	23	$25
North Hudson Hospital [1]	Weehawken	NPAssn	191	21	48	31	3,674	Rotating	8	12	(m)	(61)	Req	31	$25
NEW YORK															
Albany Hospital [1]+	Albany	NPAssn	633	60	9	31	12,068	Rotating	24	12&24	July	No	Req	72	(aa)
Memorial Hospital	Albany	NPAssn	136	1	28	71	2,649	Rotating	5	12	July & Sept.	No	Req	38	$25
St. Peter's Hospital	Albany	Church	155	28	7	65	3,234	Rotating	5	12	July	(64)	Req	16	$40
Binghamton City Hospital +	Binghamton	City	500	46		54	8,482	Rotating	12	24	July	No	Req	20	$25
Beth-El Hospital	Brooklyn	NPAssn	290	35	18	47	6,571	Rotating	21	12&24	Jan. & July	No	Op	36	No
Beth Moses Hospital	Brooklyn	NPAssn	224	46	2	52	4,780	Rotating	16	24	Jan. & July	No	Req	21	$15
Brooklyn Hospital	Brooklyn	NPAssn	410	40	13	47	8,260	Rotating	16	24	July	No	Req	37	No
Bushwick Hospital	Brooklyn	NPAssn	130	1	25	74	2,915	Rotating	10	24	July	No	Req	28	No
Caledonian Hospital	Brooklyn	NPAssn	130	1	50	49	2,163	Rotating	3	24	July	No	Req	18	$25
Coney Island Hospital +	Brooklyn	City	409	100			9,113	Rotating	22	24	July	No	Req	33	$15
Cumberland Hospital +	Brooklyn	City	318	100			8,178	Rotat&Str	26	12&24	July	No	Op	60	$15
Greenpoint Hospital +	Brooklyn	City	300	100			8,751	Rotating	20	24	July	No	Req	34	$15
Israel Zion Hospital	Brooklyn	NPAssn	450	22	12	66	9,778	Rotat&Str	34	12-36	Jan. & July	(65)	Req	41	No
Jewish Hospital [1]+	Brooklyn	NPAssn	661	36	42	22	12,294	Rotating	24	18	Jan. & July	(65)	Req	39	No
Kings County Hospital +	Brooklyn	City	2,945	100			58,288	Rotat&Str	112	12&24	July	No	Op	15	$15
Long Island College Hospital [1]+	Brooklyn	NPAssn	467	20	38	42	7,809	Rotat&Str	21	12	July	(66)	Req	32	No
Methodist Hospital +	Brooklyn	Church	480	9	26	65	9,508	Rotating	14	24	July	No	Req	41	No
Norwegian Lutheran Deaconesses' Home and Hospital [1]+	Brooklyn	Church	200	39	24	37	4,349	Rotating	12	12	July	No	Req	51	No
St. Catherine's Hospital	Brooklyn	Church	313	8	28	64	7,251	Rotating	16	24	July	No	Req	20	No
St. John's Hospital +	Brooklyn	Church	234	49	6	45	4,781	Rotating	12	36	July	No	Req	46	No

Numerical and other references will be found on page 841.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage: Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
NEW YORK—Continued															
St. Mary's Hospital	Brooklyn	Church	359	25	50	25	6,258	Rotating	16	24	July	No	Req	30	No
St. Peter's Hospital	Brooklyn	Church	223	33		67	2,904	Rotating	6	12	July	No	None	21	No
Trinity Hospital	Brooklyn	NPAssn	125	85	7	8	2,626	Rotating	9	24	July	No	Req	55	No
U. S. Naval Hospital	Brooklyn	Navy	515	100			2,675	Rotating	..	12	July	No	Req	23	(b)
Wyckoff Heights Hospital	Brooklyn	NPAssn	199	38	27	35	4,659	Rotating	9	18	Jan. & July	No	Req	25	No
Buffalo General Hospital ✚	Buffalo	NPAssn	475	8	41	51	10,568	Rotating	14	12	July	No	Req	52	No
Buffalo Hospital of the Sisters of Charity [1]	Buffalo	Church	229	39	32	29	4,088	Rotating	12	12	July	(67)	Req	19	$25
Deaconess Hospital ✚	Buffalo	NPAssn	239	1	12	87	6,130	Rotating	6	12	July	No	None	28	$25
Edward J. Meyer Memorial Hospital [1✚] (Buffalo City Hospital)	Buffalo	City	1,063	86	11	3	10,543	Rotating	15	12	July	No	Req	25	$50(a)
Mercy Hospital	Buffalo	Church	198	3	36	61	4,037	Rotating	6	12	July	No	Req	18	$30
Millard Fillmore Hospital ✚	Buffalo	NPAssn	382	20	28	52	6,712	Rotating	7	12	July	No	Req	42	$15
Mary Imogene Bassett Hospital [1✚]	Cooperstown	NPAssn	100	24	5	71	1,877	Rotat&Str	6	12&24	July	No	None	64	$50
Arnot-Ogden Memorial Hospital	Elmira	NPAssn	213	9		91	3,648	Rotating	4	12	July	(68)	Req	46	$20(e)
St. Joseph's Hospital	Elmira	Church	216	7	60	33	3,520	Rotating	4	12	July	No	Req	28	$25
Ideal Hospital	Endicott	City	146	4		96	2,766	Rotating	3	12	July	No	None	33	$20(z)
Flushing Hospital and Dispensary	Flushing	NPAssn	274	2	28	70	6,490	Rotating	10	24	June	No	Req	42	$25
Meadowbrook Hospital [1✚]	Hempstead	County	268	90	5	5	5,913	Rotating	12	24	July	No	None	58	$25
Jamaica Hospital [1]	Jamaica	NPAssn	202	5	32	63	4,469	Rotating	8	18	Jan. & July	No	Req	33	$15
Mary Immaculate Hospital ✚	Jamaica	Church	320	20	15	65	8,366	Rotating	16	24	July	No	Req	24	No
Queens General Hospital [1✚]	Jamaica	City	696	100			13,368	Rotat&Str	38	12&24	July	No	Req	65	$15
Charles S. Wilson Memorial Hospital ✚	Johnson City	NPAssn	350	2		98	5,849	Rotating	9	24	July	(69)	Req	45	$50
Kingston Hospital [1]	Kingston	NPAssn	133	1	73	26	3,048	Rotating	3	12	July	(70)	None	45	$25(p)
St. John's Long Island City Hospital	Long Island City	Church	291	5	20	75	4,320	Rotating	15	24	July	No	Req	47	No
Nassau Hospital	Mineola	NPAssn	192	1	81	18	5,116	Rotating	4	12	July	No	None	29	$50
Mount Vernon Hospital	Mount Vernon	NPAssn	181	16	20	64	4,285	Rotating	6	24	July	No	Req	36	(bb)
New Rochelle Hospital ✚	New Rochelle	NPAssn	147	10	30	60	5,313	Rotating	7	12	July	No	Req	40	$25
Beekman Street Hospital [1]	New York	NPAssn	100	24	59	17	2,012	Mixed	8	24	Jan. & July	No	Req	51	$30
Bellevue Hospital [1✚]	New York	City	2,529	100			65,352	RotMixStr	98†	12-24	Jan. & July	No	Req	30	$15
Beth David Hospital	New York	NPAssn	200	25	29	46	4,233	Rotating	11	24	Jan. & July	No	Req	24	No
Beth Israel Hospital [1✚]	New York	NPAssn	420	43	9	48	7,683	Rotat&Str	28	12-36	(n)	No	Op	38	No
Bronx Hospital ✚	New York	NPAssn	362	26	24	50	11,552	Rotating	16	24	(cc)	No	Req	34	(g)
Columbus Hospital	New York	Church	300	20	55	25	5,050	Rotating	12	18	Jan. & July	No	Req	18	No
Flower and Fifth Avenue Hospitals ✚	New York	NPAssn	364	9	31	60	8,449	Rotating	24	24	July	No	Req	27	No
Fordham Hospital ✚	New York	City	609	100			14,148	Rotating	28	18&24	(k)	No	Op	33	$15
French Hospital ✚	New York	NPAssn	332	11	14	75	5,517	Straight	15	12&24	(n)	No	Op	28	(p)
Gouverneur Hospital	New York	City	194	100			3,924	Rotating	20	24	Jan. & July	No	Op	37	$15
Harlem Hospital [1✚]	New York	City	642	98	1	1	16,480	Rotating	52	24	Jan. & July	No	Req	22	$15
Hospital for Joint Diseases ✚	New York	NPAssn	355	44	12	44	6,082	Rotating	12	24	Jan. & July	(71)	Req	33	$15
Jewish Memorial Hospital	New York	NPAssn	209	16	58	26	4,817	Rotating	12	24	Apr. & Oct.	No	Req	40	(p)
Knickerbocker Hospital	New York	NPAssn	260	5	67	28	4,361	Rotating	16	24	Jan. & July	No	Req	42	No
Lebanon Hospital	New York	NPAssn	154	53	39	8	2,423	Rotating	8	24	Apr. & Oct.	No	Req	28	No
Lenox Hill Hospital [1✚]	New York	NPAssn	677	40	25	35	11,168	Rotating	24	24	Jan. & July	No	Op	43	$40 yr.
Lincoln Hospital ✚	New York	City	368	100			9,740	Rotating	48	24	Jan. & July	No	Req	34	$15
Manhattan General Hospital [1]	New York	Corp	248	4		96	4,429	Rotating	10	18	Jan. & July	No	None	52	$50
Metropolitan Hospital [1✚]	New York	City	1,425	100			10,118	Rotating	41	24	July	No	Req	47	$15
Misericordia Hospital	New York	Church	313	24		76	4,630	Rotating	8	24	Jan. & July	No	Req	34	$15
Montefiore Hosp. for Chronic Diseases [1✚]	New York	NPAssn	714	88	5	7	1,744	Mix&Str	11	12	Jan. & July	No	Req	76	$25
Morrisania City Hospital ✚	New York	City	539	100			13,180	Rotating	32	24	Jan. & July	No	Req	34	$15
Mount Sinai Hospital [1✚]	New York	NPAssn	840	57	27	16	16,074	Mix&Str	32	12&30	(k)	No	Op	50	(p)
New York City Hospital ✚	New York	City	1,030	100			9,393	Rotating	32	24	July	No	Req	40	$15
New York Hospital [1✚]	New York	NPAssn	1,053	17	..	..	16,162	Straight	35	12	July	(72)	Op	68	No
New York Infirmary for Women and Children [2✚]	New York	NPAssn	167	34	6	60	3,543	Rotating	5	12	June & Sept.	No	Req	64	$10
New York Polyclinic Medical School and Hospital ✚	New York	NPAssn	366	12	40	48	8,722	Rotating	8	24	(n)	No	Req	28	No
New York Post-Graduate Medical School and Hospital ✚	New York	NPAssn	410	17	3	80	9,202	Mix&Str	11	12&24	(n)	No	Req	39	No
Presbyterian and Sloan Hospitals [1✚]	New York	NPAssn	1,045	28	42	30	19,780	Mix&Str	44	12-25	(dd)	No	Req	41	No
Roosevelt Hospital ✚	New York	NPAssn	385	15		85	7,008	Mixed	25	12-36	Jan. & July	No	Req	33	No
St. Francis Hospital	New York	Church	380	50	35	15	4,681	Mixed	8	24	Jan. & July	No	None	19	No
St. Luke's Hospital ✚	New York	Church	492	46	26	28	8,048	Mixed	16	24	Jan. & July	No	Req	56	No
St. Vincent's Hospital	New York	Church	465	24	49	27	10,223	Rotating	35	30	Jan. & July	No	Req	30	(p)
Sydenham Hospital	New York	NPAssn	205	10	50	40	4,853	Rotat&Mix	18	12&24	Jan. & July	No	Req	51	No
United Hospital	Port Chester	NPAssn	202	1	53	46	5,159	Rotating	4	12	July	No	Req	36	$40(g)
Vassar Brothers Hospital	Poughkeepsie	NPAssn	225	18		82	4,692	Rotating	4	12	July	No	Req	16	$30(e)
Genesee Hospital ✚	Rochester	NPAssn	233	14	43	43	6,241	Rotating	8	24	July	(73)	Req	42	$5-10
Highland Hospital	Rochester	NPAssn	265	3	78	19	4,942	Rotating	8	24	July	No	Req	16	$25
Rochester General Hospital ✚	Rochester	Church	375	15	7	78	8,974	Rotating	12	12	July	No	Req	53	$15
St. Mary's Hospital	Rochester	Church	238	17	35	48	5,958	Rotating	5	12	July	No	Req	32	$20
Strong Memorial and Rochester Municipal Hospitals [1✚]	Rochester	NP-Cy	657	62	18	20	14,211	Mix&Str	36	12&24	July	No	Req	62	No
Ellis Hospital [1]	Schenectady	NPAssn	285	1	31	68	8,064	Rotating	10	12	July	No	Req	18	$15
U. S. Marine Hospital (Staten Island)	Stapleton	USPHS	722	100			7,026	Rotating	23	12	July	(74)	Req	49	(b)
St. Vincent's Hospital	Staten Island	Church	241	1	79	20	5,845	Rotating	8	24	July	No	Req	19	No
Staten Island Hospital	Staten Island	Corp	268	2	51	47	5,955	Rotating	7	24	Jan. & July	No	Req	23	$15
Crouse-Irving Hospital	Syracuse	NPAssn	240	13	69	18	5,829	Rotating	4	12	July	No	Req	23	$25
General Hospital [1]	Syracuse	NPAssn	110	31		69	2,744	Rotating	4	12	July	No	Req	44	No
Hospital of the Good Shepherd ✚	Syracuse	NPAssn	210	2	37	61	4,575	Rotating	16	24	July	(75)	None	41	No
St. Joseph Hospital	Syracuse	Church	231	28	51	21	7,588	Rotating	8	12	July	No	None	23	No
Syracuse Memorial Hospital ✚	Syracuse	NPAssn	250	46	29	25	5,858	Rotating	8	24	July	(75)	None	45	No
Samaritan Hospital	Troy	NPAssn	181	3	59	38	3,747	Rotating	4	12	July	No	Req	35	$25
Troy Hospital	Troy	Church	294	10	67	23	3,726	Rotating	4	12	July	(64)	Req	..	$30
Grasslands Hospital [1✚]	Valhalla	County	815	90	2	8	5,652	Rotating	24	24	Jan. & July	No	Req	69	(ee)
St. Agnes Hospital	White Plains	Church	177	4	15	81	3,638	Rotating	5	12	July	No	Req	41	$25
St. John's Riverside Hospital	Yonkers	NPAssn	200	27		73	4,892	Rotating	5	12	(d)	No	Op	32	$50
Yonkers General Hospital	Yonkers	NPAssn	178	23	38	39	3,166	Rotating	4	12	Jan. & July	No	Req	23	$25-50(g)
NORTH CAROLINA															
Duke Hospital ✚	Durham	NPAssn	450	67	20	13	10,976	Straight	72	12	July & Sept.	No	Req	58	No
Lincoln Hospital (col.)	Durham	NPAssn	108	50	17	33	1,827	Rotating	4	12	July	No	Req	28	$25
Watts Hospital ✚	Durham	NPAssn	225	25	15	60	5,575	Rotating	7	12	July	No	Req	26	$15
Highsmith Hospital	Fayetteville	NPAssn	126	20	35	45	3,015	Rotating	4	12	July	No	Req	24	$25
Rex Hospital	Raleigh	NPAssn	200	17	14	69	4,770	Rotating	5	12	July	No	Req	22	$25
St. Agnes Hospital (col.)	Raleigh	Church	100	54	18	28	1,375	Mixed	3	12	July & Oct.	No	Req	31	(g)
Park View Hospital	Rocky Mount	NPAssn	120	29	18	53	2,848	Rotating	3	12	July	No	Req	24	$25
City Hospital ✚	Winston-Salem	City	345	37	6	57	5,723	Mixed	10	12	July	No	Req	44	$15(gg)
NORTH DAKOTA															
St. John's Hospital	Fargo	Church	185	2	57	41	5,207	Mixed	2	12	July	No	None	33	$25
Trinity Hospital ✚	Minot	Church	173	10	45	45	2,977	Rotating	4	12	July	No	None	86	$25

Numerical and other references will be found on page 841.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage: Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
OHIO															
City Hospital ✚	Akron	NPAssn	365	37		63	9,529	Rotating	12	12	July	(76)	Req	40	$22
Peoples Hospital [1]	Akron	NPAssn	156	40		60	4,115	Rotating	5	12	July	(76)	Req	35	$30
St. Thomas Hospital ✚	Akron	Church	185	26	48	26	5,088	Rotating	4	12	July	No	None	28	$20
Aultman Hospital	Canton	NPAssn	161	23	58	19	3,535	Rotating	4	12	July	(77)	None	31	$50
Mercy Hospital ✚	Canton	Church	237	17	58	25	6,696	Rotating	5	12	July	No	None	35	$25
Bethesda Hospital	Cincinnati	Church	279	50	30	20	6,466	Rotating	6	12	July	No	Req	24	$25
Christ Hospital ✚	Cincinnati	Church	352	4	39	57	7,825	Rotating	9	12	June	(78)	Reg	30	$22.50
Cincinnati General Hospital [1]✚	Cincinnati	City	925	87	10	3	15,851	Rotating	40	12	July	(79)	Req	51	No
Deaconess Hospital ✚	Cincinnati	Church	200	6	41	53	4,469	Rotating	6	12	July	(80)	None	20	$25(g)
Good Samaritan Hospital [1]✚	Cincinnati	Church	615	10	61	29	10,581	Rotating	12	12	June	No	None	39	$15
Jewish Hospital ✚	Cincinnati	NPAssn	299	35	29	36	5,986	Rotating	8	12	July	(81)	Req	29	$20
St. Mary's Hospital	Cincinnati	Church	220	67	25	8	4,545	Rotating	6	12	July	No	None	27	$25
City Hospital [1]✚	Cleveland	City	1,579	85	10	5	13,740	Rotating	36	12	July	No	Req	45	No
Fairview Park Hospital	Cleveland	Church	109	18	2	80	3,126	Rotating	6	12	July	No	Req	37	$30
Lutheran Hospital	Cleveland	Church	137	5	40	55	4,138	Rotating	4	12	July	No	None	29	$25(e)
Mount Sinai Hospital [1]✚	Cleveland	NPAssn	270	23	10	67	8,445	Rotating	11	12	July	No	Req	41	$10
St. Alexis Hospital ✚	Cleveland	Church	220	55	5	40	4,633	Rotating	8	12	July	(82)	Req	44	$10
St. John's Hospital ✚	Cleveland	Church	249	17	3	80	5,823	Rotating	6	12	July	No	None	26	$12.50(hh)
St. Luke's Hospital ✚	Cleveland	Church	391	18	1	81	11,883	Rotating	18	12	July	No	Req	35	No
St. Vincent Charity Hospital ✚	Cleveland	Church	295	32	1	67	5,417	Rotating	12	12	July	(82)	Req	34	No
University Hospitals [1]✚	Cleveland	NPAssn	822	30	5	65	19,336	Mix&Str	39	12-24	(ii)	No	Req	61	(jj)
Woman's Hospital [1]	Cleveland	NPAssn	110	6	20	74	2,101	Rotating	3	12	July	No	None	21	$25
Grant Hospital	Columbus	NPAssn	333	19	41	40	6,309	Rotating	8	12	July	No	Req	20	$25
Mount Carmel Hospital	Columbus	Church	250	24	33	43	5,109	Rotating	8	12	July	(83)	None	29	$25
St. Francis Hospital	Columbus	State	160	70	12	18	3,063	Rotating	8	12	July	(84)	None	33	$125 yr.
Starling-Loving University Hospital [1]✚	Columbus	State	296	50	11	39	5,717	Straight	10	12	July	No	Req	63	$50 yr.
White Cross Hospital [1]	Columbus	Church	299	25	45	30	6,965	Rotating	6	12	July	No	None	33	$25
Good Samaritan Hospital [1]	Dayton	Church	298	40	5	55	4,231	Rotating	4	12	July	No	None	23	$25
Miami Valley Hospital ✚	Dayton	NPAssn	431	29	31	40	10,813	Rotating	8	12	July	(85)	None	44	$25
St. Elizabeth Hospital	Dayton	Church	435	49	7	44	7,110	Rotating	6	12	July	No	None	26	$25
Huron Road Hospital [1]✚	East Cleveland	NPAssn	301	2	22	76	7,293	Rotating	9	12	July	No	Req	42	$20
Mercy Hospital	Hamilton	Church	240	20	60	20	3,184	Rotating	3	12	July	No	Req	31	$25(s)
Lima Memorial Hospital	Lima	NPAssn	144	3	72	25	3,759	Rotating	4	12	July	No	None	32	$20
St. Rita's Hospital	Lima	Church	116	6	45	49	2,381	Rotating	3	12	July	No	Req	32	$25
Springfield City Hospital	Springfield	City	298	40	26	34	5,056	Rotating	6	12	July	No	Req	44	$30
Flower Hospital	Toledo	Church	135	8	40	52	2,861	Rotating	3	12	July	No	None	35	$25
Lucas County General Hospital ✚	Toledo	County	325	100			5,886	Rotating	10	12	July	No	Req	35	$25
Mercy Hospital	Toledo	Church	140	13	49	38	2,932	Rotating	4	12	July	No	Req	20	$25
St. Vincent's Hospital [1]	Toledo	Church	354	25	41	34	9,901	Rotating	10	12	July	No	Req	30	$25
Toledo Hospital	Toledo	NPAssn	300	5	50	45	4,255	Rotating	5	12	July	No	Req	36	$25
Women's and Children's Hospital	Toledo	NPAssn	150	3	52	45	2,059	Rotating	3	12	July	No	Req	27	$25
St. Elizabeth's Hospital ✚	Youngstown	Church	261	36	36	28	6,443	Rotating	7	12	July	No	Req	21	$20(e)
Youngstown Hospital ✚	Youngstown	NPAssn	565	25	3	72	9,520	Rotating	14	24	July	No	Req	29	$20-35
OKLAHOMA															
St. Anthony Hospital ✚	Oklahoma City	Church	350	9	55	36	9,907	Rotating	9	12	July	No	Req	23	$20
State University and Crippled Children's Hospitals ✚	Oklahoma City	State	458	95	5		6,535	Rotating	20	24	July	No	Req	44	$10-25
Wesley Hospital	Oklahoma City	Part	160		25	75	4,424	Rotating	5	12	July	No	None	26	$25
Morningside Hospital	Tulsa	Corp	250		30	70	4,156	Rotating	5	12	July	No	Req	23	$25(g)
St. John's Hospital	Tulsa	Church	322	33	33	34	6,008	Rotating	6	12	July	No	None	21	$25(u)
OREGON															
Emanuel Hospital [1]✚	Portland	Church	328	10	10	80	8,519	Rotating	10	12	June	(86)	None	32	$20
Good Samaritan Hospital	Portland	Church	359	1	27	72	10,155	Rotating	10	12	July	No	None	36	$20
Portland Sanitarium and Hospital	Portland	Church	134	10	27	63	5,519	Rotating	4	12	July	No	None	47	$40(a)
St. Vincent's Hospital ✚	Portland	Church	422	10	50	40	9,236	Rotating	10	12	July	No	None	49	$20
University of Oregon Medical School Hospitals and Clinics [1]✚	Portland	Co-State	385	100			7,874	Rotating	16	12	July	No	Req	53	$20
PENNSYLVANIA															
Abington Memorial Hospital ✚	Abington	NPAssn	305	16	23	61*	6,411	Rotating	12	24	July	No	Req	49	No
Allentown Hospital [1]	Allentown	NPAssn	384	40	10	50	7,681	Rotating	10	12	July	No	Req	30	No
Sacred Heart Hospital	Allentown	Church	325	64	10	26	5,006	Rotating	7	12	July	No	Req	35	No
Altoona Hospital	Altoona	NPAssn	180	47	4	49	2,977	Rotating	5	12	July	No	Req	22	$25
Mercy Hospital	Altoona	Church	144	46	2	52	3,402	Rotating	4	12	July	No	Req	40	$25
St. Luke's Hospital ✚	Bethlehem	NPAssn	215	31	25	44	4,476	Rotating	7	12	July	No	Req	30	(g)
Braddock General Hospital [1]	Braddock	NPAssn	137	34	9	57	2,969	Rotating	4	12	July	No	Req	27	$25
Bryn Mawr Hospital	Bryn Mawr	NPAssn	266	11	23	66	5,067	Rotating	8	12	July	No	Req	45	No
Chester Hospital	Chester	NPAssn	285	57	4	39	4,270	Rotating	6	12	July	No	Req	42	$15
George F. Geisinger Memorial Hospital ✚	Danville	NPAssn	179	32	17	51	5,443	Rotating	10	12	July	No	Req	33	No
Fitzgerald-Mercy Hospital [1]	Darby	Church	248	55	15	30	3,343	Rotating	8	12	July	No	Req	45	No
Easton Hospital	Easton	NPAssn	220	35	5	60	5,099	Rotating	5	12	July	No	Req	16	(g)
Hamot Hospital	Erie	NPAssn	255	44	16	40	6,561	Rotating	8	12	July	No	Req	37	$50
St. Vincent's Hospital	Erie	NPAssn	216	55		45	6,357	Rotating	10	12	July	No	Req	32	$15(e)
Harrisburg Hospital [1]	Harrisburg	NPAssn	264	46	5	49	6,684	Rotating	10	12	July	No	Req	31	$15
Harrisburg Polyclinic Hospital	Harrisburg	NPAssn	192	40		60	4,008	Rotating	5	12	July	No	Req	22	$25
Conemaugh Valley Memorial Hospital	Johnstown	NPAssn	345	38	12	50	6,927	Rotating	8	12	July	No	Req	..	No
Nesbitt Memorial Hospital [1]	Kingston	NPAssn	130	18	10	72	3,156	Rotating	3	12	Jan. & July	No	Req	27	No
Lancaster General Hospital [1]	Lancaster	NPAssn	277	40	3	57	6,127	Rotating	7	12	July	No	Req	48	$17.50
St. Joseph's Hospital [1]	Lancaster	Church	232	35	27	38	4,295	Rotating	6	12	July	No	Req	41	$17.50
McKeesport Hospital	McKeesport	NPAssn	290	24	10	66	5,376	Rotating	7	12	July	No	Req	51	$25
Montgomery Hospital	Norristown	NPAssn	160	52	18	30	2,710	Rotating	4	12	July	No	Req	44	$30
Chestnut Hill Hospital	Philadelphia	NPAssn	114	13	21	66	1,834	Rotating	4	12	July	No	Req	44	$50
Frankford Hospital	Philadelphia	NPAssn	192	14	25	61	3,640	Rotating	7	12	July	No	Req	32	No
Germantown Dispensary and Hospital ✚	Philadelphia	NPAssn	396	25	29	46	7,527	Rotating	12	24	July	No	Req	47	No
Graduate Hospital of the University of Pennsylvania ✚	Philadelphia	NPAssn	461	45	30	25	6,855	Rotating	16	24	July	(87)	Req	47	No
Hahnemann Hospital ✚	Philadelphia	NPAssn	592	30	28	42	12,683	Rotating	24	12	July	No	Req	43	No
Hospital of the Protestant Episcopal Church	Philadelphia	Church	530	25	29	46	7,887	Rotating	18	24	Jan. & July	No	Req	72	No
Hospital of the Univ. of Pennsylvania [1]✚	Philadelphia	State	636	29	30	41	11,094	Rotating	28	24	July	No	Req	67	No
Hosp. of the Woman's Medical College [2]	Philadelphia	NPAssn	173	15	35	50	3,698	Rotating	6	12	July & Sept.	No	Req	41	No
Jefferson Medical College Hospital ✚	Philadelphia	NPAssn	745	75	25		13,352	Rotating	29	27	June	No	Req	41	No
Jewish Hospital [1]✚	Philadelphia	NPAssn	545	29	15	56	8,270	Rotating	18	24	June	(88)	Req	64	No
Lankenau Hospital	Philadelphia	NPAssn	291	34	11	55	4,520	Rotating	10	24	July	(89)	Req	30	No
Mercy Hospital [1] (col.)	Philadelphia	NPAssn	110	45	48	7	1,872	Rotating	5	12	July	(90)	Req	22	$10
Methodist Hospital	Philadelphia	Church	206	43	8	49	3,822	Rotating	7	12	July	No	Req	20	No
Misericordia Hospital [1]	Philadelphia	Church	230	14	67	19	4,432	Rotating	9	12	July	No	Req	40	No
Mount Sinai Hospital [1]✚	Philadelphia	NPAssn	316	20	42	38	7,526	Rotating	14	12	June	No	Op	57	No
Northeastern Hospital [1]	Philadelphia	NPAssn	117	14	15	71	2,523	Rotating	4	12	July	No	Req	61	$20

Numerical and other references will be found on page 841.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage: Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
PENNSYLVANIA—Continued															
Pennsylvania Hospital ✚	Philadelphia	NPAssn	560	31	41	28	8,915	Rotating	24	24	(kk)	(91)	Req	56	No
Philadelphia General Hospital [1]✚	Philadelphia	City	2,736	95	4	1	24,189	Rotating	60	24	July	(88)	Req	52	No
Presbyterian Hospital ✚	Philadelphia	Church	356	16	17	67	5,099	Rotating	12	24	July	No	Req	71	No
St. Joseph's Hospital [1]	Philadelphia	Church	182	45	20	35	2,439	Rotating	6	12	July	No	Req	51	No
St. Luke's and Children's Hospital	Philadelphia	NPAssn	259	29	22	49	4,610	Rotating	9	12	July	No	Req	34	No
St. Mary's Hospital	Philadelphia	Church	294	25	35	40	4,440	Rotating	8	12	July	No	Req	31	No
Temple University Hospital ✚	Philadelphia	NPAssn	424	30	26	44	10,223	Rotating	19	24	July	(92)	Req	53	No
U. S. Naval Hospital	Philadelphia	Navy	650	100			7,095	Rotating	8	12	July	(93)	Op	49	(b)
Woman's Hospital [2]✚	Philadelphia	NPAssn	150	19	24	57	3,766	Rotating	6	12	July & Sept.	(94)	Op	56	No
Women's Homoeopathic Hospital	Philadelphia	NPAssn	200	39	15	46	3,079	Rotating	4	12	July	No	Req	32	$10
Allegheny General Hospital [1]✚	Pittsburgh	NPAssn	592	52	3	45	8,975	Rotating	16	12	July	No	Req	35	No
Mercy Hospital [1]✚	Pittsburgh	Church	670	30	40	30	11,799	Rotating	24	12	July	(95)	Req	35	No
Montefiore Hospital ✚	Pittsburgh	NPAssn	275	31	46	23	6,339	Rotating	10	12	July	No	Req	48	No
Passavant Hospital [1]	Pittsburgh	Church	140	41	10	49	2,345	Rotating	5	12	July	No	Req	29	(l)
Pittsburgh Hospital	Pittsburgh	NPAssn	232	27	6	67	4,352	Rotating	6	12	July	No	Req	39	$25
Presbyterian Hospital [1]✚	Pittsburgh	NPAssn	145	39	1	60	2,455	Rotating	18	12	July	(96)	Req	37	No
St. Francis Hospital ✚	Pittsburgh	Church	646	24		76	10,769	Rotating	20	12	July	(97)	Req	30	No
St. John's General Hospital	Pittsburgh	NPAssn	225	21	4	75	4,337	Rotating	5	12	July	No	Req	39	(f)
St. Joseph's Hospital and Dispensary	Pittsburgh	Church	140	27	61	12	2,597	Rotating	4	12	July	No	Req	43	$25
St. Margaret Memorial Hospital	Pittsburgh	Church	150	42	32	26	2,580	Rotating	4	12	July	No	Req	44	No
Shadyside Hospital	Pittsburgh	NPAssn	275	45	3	52	5,819	Rotating	8	12	July	(97)	Req	28	No
South Side Hospital	Pittsburgh	NPAssn	225	30	43	27	4,358	Rotating	7	12	July	No	Req	19	No
Western Pennsylvania Hospital [1]✚	Pittsburgh	NPAssn	661	34		66	11,419	Rotating	20	12	July	No	Req	25	No
Pottsville Hospital [1]	Pottsville	NPAssn	160	61	6	33	3,351	Rotating	5	12	July	No	Req	28	$25
Homoeopathic Med. and Surgical Hosp.	Reading	NPAssn	119	55	3	42	2,692	Rotating	4	12	June	No	Req	30	$25
Reading Hospital ✚	Reading	NPAssn	289	51	5	44	6,597	Rotating	8	12	July	No	Req	65	No
St. Joseph's Hospital	Reading	Church	210	42	2	56	4,412	Rotating	6	12	July	(98)	Req	37	No
Robert Packer Hospital ✚	Sayre	NPAssn	325	48	3	49	7,395	Rotating	10	12	Jan. & July	No	Req	47	No
Moses Taylor Hospital	Scranton	NPAssn	125	74		26	2,089	Rotating	3	12	July	(99)	Req	39	$15
Scranton State Hospital	Scranton	State	135	94	1	5	3,368	Rotating	8	12	July	No	Req	37	$8.33
Valley Hospital [1]	Sewickley	NPAssn	140	27	4	69	3,054	Rotating	4	12	July	No	Req	27	$25
Uniontown Hospital	Uniontown	NPAssn	225	34	8	58	4,837	Rotating	5	12	July	No	Req	33	$25
Washington Hospital	Washington	NPAssn	166	29	7	64	3,499	Rotating	5	12	July	No	Req	35	$25
Chester County Hospital	West Chester	NPAssn	159	52	17	31	4,087	Rotating	4	12	July	No	Req	31	$25
Mercy Hospital [1]	Wilkes-Barre	Church	220	62	2	36	4,377	Rotating	6	12	July	No	Req	23	$40 yr.
Wilkes-Barre General Hospital	Wilkes-Barre	NPAssn	404	59	7	34	8,695	Rotating	12	12	July	No	Req	26	No
Columbia Hospital [1]	Wilkinsburg	Church	214	41	5	54	3,451	Rotating	6	12	July	No	Req	30	$20
Williamsport Hospital [1]	Williamsport	NPAssn	275	46	4	50	5,346	Rotating	7	12	July	No	Req	20	$10
Windber Hospital [1]	Windber	NPAssn	117	10	70	20	3,071	Rotating	4	12	July	No	Req	32	$25
York Hospital	York	NPAssn	209	52	5	43	5,081	Rotating	8	12	July	No	Req	47	$25
RHODE ISLAND															
Memorial Hospital	Pawtucket	NPAssn	196	43	10	47	3,164	Rotating	6	18	Mar. & Dec.	No	Req	16	No
Homeopathic Hospital	Providence	NPAssn	200	15	22	63	4,751	Rotating	5	12	July	No	Req	26	$50
Rhode Island Hospital ✚	Providence	NPAssn	580	39	34	27	8,147	Rotating	24	24	Monthly	(100)	Req	39	No
St. Joseph's Hospital	Providence	Church	350	44	11	45	4,736	Rotating	6	24	(k)	No	Req	25	No
SOUTH CAROLINA															
Roper Hospital ✚	Charleston	NPAssn	300	72	4	24	7,485	Rotating	15	12	July	No	Req	39	$10
Columbia Hospital [1]	Columbia	County	305	33	15	52	7,673	Rotating	6	12	July	No	Req	17	$35(g)
Greenville General Hospital	Greenville	City	200	43	5	52	5,625	Rotating	6	12	July	No	Req	21	$15(f)
TENNESSEE															
Baroness Erlanger Hospital ✚	Chattanooga	CyCo	253	60	1	39	7,858	Rotating	12	12	July	(101)	Req	27	$25
Knoxville General Hospital	Knoxville	City	312	68		32	8,010	Rotating	9	18	(n)	No	Req	28	$25
Baptist Memorial Hospital	Memphis	Church	500	35	20	45	14,451	Rotating	10	18	(y)	No	Req	15	$25
John Gaston Hospital ✚	Memphis	City	611	98		2	14,345	Rotating	24	12&18	Monthly	No	Req	24	$20
Methodist Hospital	Memphis	Church	185	20	10	70	6,773	Mixed	5	12	(n)	No	None	39	$50
St. Joseph's Hospital	Memphis	Church	240	17	50	33	5,851	Rotating	5	12	(n)	No	Op	15	$35
George W. Hubbard Hospital [1]✚ (col.)	Nashville	NPAssn	186	67	33		2,601	Rotating	8	12	July	No	Req	32	$15(i)
Nashville General Hospital ✚	Nashville	City	305	90		10	7,214	Rotating	11	12	July	No	Req	38	$20
St. Thomas Hospital	Nashville	Church	225	15	50	35	6,249	Rotating	7	12	July	No	Req	15	$40
Vanderbilt University Hospital [1]✚	Nashville	NPAssn	378	30	29	41	5,431	Straight	18	12	July	(102)	Op	56	No
TEXAS															
Baylor University Hospital [1]✚	Dallas	Church	460	15	15	70	15,316	Rotating	18	12	July	No	Req	33	$25
Methodist Hospital [1]	Dallas	Church	163	4	27	69	3,850	Rotating	5	12	July	No	Req	23	$25(j)
Parkland Hospital [1]✚	Dallas	CyCo	435	95	5		10,286	Rotating	12	12	Jan. & July	(103)	Req	25	$10
St. Paul's Hospital	Dallas	Church	300	13	14	73	10,017	Rotating	9	12	July	No	Req	20	$25
El Paso City-County Hospital	El Paso	CyCo	232	90	10		4,248	Rotating	4	12	July	No	Req	31	$25(i)
City and County Hospital	Fort Worth	CyCo	111	100			3,831	Rotating	4	12	July	No	Req	34	$25
Harris Memorial Methodist Hospital [1]	Fort Worth	Church	260	10	20	70	4,075	Rotating	6	12	July	No	Req	27	$25(l)
St. Joseph's Hospital	Fort Worth	Church	221	17	10	73	4,216	Rotating	5	12	Jan. & July	No	None	33	$30(l)
John Sealy Hospital [1]✚	Galveston	City	454	55	20	25	6,408	Rotating	12	12	July	No	Req	54	No
Hermann Hospital	Houston	NPAssn	156	75		25	4,520	Rotating	6	24	July	No	Req	51	$20-30
Jefferson Davis Hospital [1]	Houston	CyCo	500	100			10,891	Rotating	24	24	July	(104)	Req	28	$25-50
Medical and Surgical Memorial Hosp. [1]	San Antonio	NPAssn	130	2	5	93	3,428	Rotating	4	12	July	No	Req	37	$25
Nix Hospital [1]	San Antonio	Corp	169			100	4,888	Rotating	5	12	July	(105)	None	26	$25
Robert B. Green Memorial Hospital [1]	San Antonio	County	215	100			4,488	Rotating	12	12	July	No	Req	46	$10
Santa Rosa Hospital	San Antonio	Church	305	23	16	61	6,192	Rotating	8	12	July	(106)	Req	15	$25
Kings Daughters Clinic and Hospital	Temple	NPAssn	118			100	2,789	Mixed	2	12	July	No	Req	18	$50
Scott and White Hospital	Temple	Corp	175			*	3,409	Rotating	7	12	July	(107)	Req	53	$50
Providence Hospital	Waco	Church	160	9	42	49	4,759	Mixed	3	12	July	No	None	18	$25
UTAH															
Thomas D. Dee Memorial Hospital	Ogden	Church	240	7	8	85	5,769	Rotating	6	12	July	No	Op	32	$25
Dr. W. H. Groves Latter-Day Saints Hospital [1]	Salt Lake City	Church	449	20		80	7,911	Rotating	11	24	July	(108)	Req	30	$15-20(u)
Holy Cross Hospital	Salt Lake City	Church	242	3	77	20	3,709	Mixed	3	12	Jan. & July	No	None	24	$15(p)
St. Mark's Hospital [1]	Salt Lake City	Church	164	8	9	83	3,235	Rotating	3	12	July	No	None	23	$25(j)
Salt Lake County General Hospital	Salt Lake City	County	254	95	5		3,675	Rotating	8	24	July	No	Req	21	$15-25(mm)
VERMONT															
Bishop DeGoesbriand Hospital [1]	Burlington	Church	122	54	19	27	3,721	Rotating	3	12	July	No	None	18	$25
Mary Fletcher Hospital ✚	Burlington	NPAssn	150	25	29	46	5,632	Rotating	6	12	July & Sept.	No	Req	42	$25
VIRGINIA															
University of Virginia Hospital ✚	Charlottesville	State	378	28	39	33	8,497	Rotating	15	12	July	(109)	Req	46	No
Hospital of St. Vincent de Paul	Norfolk	Church	250	46	22	32	4,255	Rotating	4	12	July	No	Req	27	$25
Norfolk General Hospital ✚	Norfolk	NPAssn	256	26	33	41	6,697	Rotating	7	12	July & Oct.	(110)	Req	39	$25
U. S. Marine Hospital	Norfolk	USPHS	360	100			3,176	Rotating	8	12	July	(111)	Req	78	(b)
Norfolk Naval Hospital	Portsmouth	Navy	463	100			4,426	Rotating	4	12	July	No	Req	55	(b)

Numerical and other references will be found on page 841.

Name of Hospital	Location	Control	Capacity	Classification of Patients Percentage: Free	Part Pay	Full Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
VIRGINIA—Continued															
Johnston-Willis Hospital	Richmond	Corp	132	2	10	88	4,071	Rotating	3	12	July	No	Req	28	$15
Medical College of Virginia, Hospital Division [1]+ (Memorial, Dooley, St. Philip and Crippled Children's Hosps.)	Richmond	NPAssn	512	5	81	14	10,195	Rotat&Str	25	12	July	(112)	Req	35	No
Stuart Circle Hospital	Richmond	Corp	97	2	48	50	2,921	Rotating	4	12	July	No	Req	33	$25
Jefferson Hospital	Roanoke	NPAssn	132	20	45	35	2,317	Mixed	2	12	July	No	Req	33	$50
WASHINGTON															
Columbus Hospital	Seattle	Church	230	25	17	58	2,511	Rotating	4	12	July	(113)	Req	38	$30
King County Hospital Unit No. 1[1]+(Harborview)	Seattle	County	445	100			12,309	Rotating	24	24	July	No	Req	35	$30
Providence Hospital	Seattle	Church	380	2	20	78	6,656	Rotating	6	12	July	(113)	Req	25	$35
Seattle General Hospital	Seattle	NPAssn	140		5	95	3,506	Rotating	3	12	July	(114)	Req	19	$30
Swedish Hospital	Seattle	NPAssn	320	1	5	94	6,417	Rotating	9	12	July & Oct.	(115)	Req	24	$30
U. S. Marine Hospital	Seattle	USPHS	400	100			3,037	Rotating	10	12	July	(116)	Req	68	(b)
Virginia Mason Hospital	Seattle	NPAssn	173	2	18	80	3,877	Rotating	4	12	July	No	Req	37	$30
Deaconess Hospital	Spokane	Church	215	18	42	40	5,222	Rotating	4	12	July	(117)	Req	23	$25
Sacred Heart Hospital	Spokane	Church	350	7	33	60	9,250	Rotating	7	12	July	No	None	15	$35
St. Luke's Hospital	Spokane	NPAssn	178	5	20	75	3,325	Rotating	4	12	July	(118)	None	33	$35
Pierce County Hospital	Tacoma	County	220	100			4,498	Mixed	3	12	July	No	Req	29	$45
St. Joseph's Hospital	Tacoma	Church	350	19	21	60	3,880	Mixed	4	12	July	No	None	37	$30
Tacoma General Hospital	Tacoma	NPAssn	220	5		95	4,912	Rotating	4	12	July	No	None	23	$35
WEST VIRGINIA															
Charleston General Hospital +	Charleston	NPAssn	275	10	40	50	7,174	Rotating	7	12	July	No	Req	35	$25
Chesapeake and Ohio Railway Hospital	Huntington	NPAssn	130			95	2,581	Mixed	4	12	July	No	Req	41	$37.50
St. Mary's Hospital	Huntington	Church	243	21	25	54	3,883	Rotating	3	12	July	No	Req	28	$25
Camden-Clark Memorial Hospital	Parkersburg	City	122		2	98	2,585	Rotating	2	12	July	No	Req	46	$50
St. Joseph's Hospital	Parkersburg	Church	160	5	16	79	2,596	Rotating	3	12	July	No	Req	25	$60
Ohio Valley General Hospital	Wheeling	NPAssn	276	4	45	51	5,942	Rotating	8	12	July	No	Req	23	$25
Wheeling Hospital	Wheeling	Church	270	15	12	73	3,228	Rotating	4	12	July	No	None	31	$40
WISCONSIN															
St. Elizabeth Hospital	Appleton	Church	200	25	50	25	3,653	Mixed	2	12	July	No	None	30	$25
Luther Hospital	Eau Claire	NPAssn	175	10	5	85	2,989	Rotating	3	12	July	(119)	Req	41	$25(g)
St. Agnes Hospital	Fond du Lac	Church	297	14	15	71	5,863	Rotating	5	12	June	No	None	18	$25
La Crosse Lutheran Hospital	La Crosse	Church	144	3	5	92	2,680	Mixed	1	12	July	No	Req	38	$50
St. Francis Hospital [1]	La Crosse	Church	280	21	22	57	4,885	Rotating	4	12	July	No	Req	63	$20
Madison General Hospital	Madison	NPAssn	185	5	13	82	4,881	Rotating	6	12	July	No	None	47	$25
Methodist Hospital	Madison	Church	120	5	11	84	2,132	Rotating	3	12	July	No	Req	31	$30
St. Mary's Hospital	Madison	Church	205	16	20	64	5,231	Rotating	5	12	July	No	None	49	$25
State of Wisconsin General Hospital [1]+	Madison	State	672	86	8	6	11,689	Rotating	24	12	July	No	Op	66	No
St. Joseph's Hospital	Marshfield	Church	180	5	60	35	3,301	Rotating	3	12	July	No	None	19	$30
Columbia Hospital +	Milwaukee	NPAssn	150	1	26	73	3,561	Rotating	8	24	July	(120)	Op	60	$25
Evangelical Deaconess Hospital [1]	Milwaukee	Church	163	5	33	62	4,128	Rotating	4	12	July	(121)	Req	28	$25
Milwaukee Hospital "The Passavant"	Milwaukee	Church	301	11	39	50	6,296	Rotating	7	12	July	(122)	Req	55	$25
Misericordia Hospital	Milwaukee	Church	150	3	13	84	3,381	Rotating	4	12	July	No	None	20	$35
Mount Sinai Hospital	Milwaukee	NPAssn	216	14	67	19	6,088	Rotating	7	12	July	No	Req	37	$25
St. Joseph's Hospital +	Milwaukee	Church	397	18	22	60	7,943	Rotating	10	12	July	No	Req	28	$17
St. Luke's Hospital [1]	Milwaukee	Church	160	2	7	91	3,147	Rotating	3	12	July	(123)	None	31	$50
St. Mary's Hospital +	Milwaukee	Church	247	7	37	56	4,418	Rotating	6	12	June & July	No	Req	39	$25
Mercy Hospital [1]	Oshkosh	Church	160	10	40	50	3,138	Rotating	3	12	July	No	None	29	$25
St. Mary's Hospital	Racine	Church	211	4	12	84	4,339	Mixed	2	12	July	No	None	46	$25
St. Mary's Hospital	Superior	Church	145	10	58	32	1,929	Mixed	2	12	July	No	None	45	$25
Milwaukee County Hospital [1]+	Wauwatosa	County	1,125	100			20,091	Rotating	38	12	June	(123)	Req	35	$10
CANAL ZONE															
Gorgas Hospital	Ancon	Fed	880	8	92		13,069	Rotating	8	12	July	No	Op	41	(nn)
HAWAII															
Queen's Hospital +	Honolulu	NPAssn	330	5	60	35	9,409	Rotating	7(pp)	18	(n)	(124)	None	54	$45-90
PHILIPPINE ISLANDS															
Philippine General Hospital [1]	Manila	Gov't	778	92	1	7	23,731	Rotating	107(qq)	12	March	No	Req	73	No
PUERTO RICO															
Presbyterian Hospital [1]	San Juan	Church	136	16	51	33	2,777	Rotating	4	12	July	No	Req	40	$10

Numerical and other references will be found on page 841.

HOSPITALS APPROVED FOR INTERNSHIPS IN THE DOMINION OF CANADA

For the benefit of graduates of approved medical colleges who desire an internship in Canada, the Council on Medical Education and Hospitals of the American Medical Association has declared that hospitals which conform to the standards of the Department of Hospital Service of the Canadian Medical Association should be regarded as giving an internship equivalent in educational value to that offered by hospitals in the United States approved for intern training by the Council. It is understood, however, that this statement applies only to hospitals that are unqualifiedly "Approved" under the Canadian plan and does not apply to that group referred to as "Recommended."

The following list of hospitals, revised to June 1939, has been furnished by the Department of Hospital Service.

Name of Hospital	Location
Victoria General Hospital	Halifax, N. S.
St. John General Hospital	St. John, N. B.
Hospital du St. Sacrament	Quebec, Que.
Hotel Dieu de Quebec	Quebec, Que.
Hospital of the Infant Jesus	Quebec, Que.
Jeffrey Hale's Hospital	Quebec, Que.
Children's Memorial Hosp	Montreal, Que.
Hospital Notre Dame	Montreal, Que.
Hospital Ste. Justine	Montreal, Que.
Hotel Dieu of St. Joseph	Montreal, Que.
Hospital Ste. Luc	Montreal, Que.
Jewish General Hospital	Montreal, Que.
Montreal General Hospital	Montreal, Que.
Royal Victoria Hospital	Montreal, Que.
St. Mary's Hospital	Montreal, Que.
Woman's General Hospital, (Westmount)	Montreal, Que.
McKellar General Hospital	Fort William, Ont.
Hamilton General Hospital	Hamilton, Ont.
St. Joseph's Hospital	Hamilton, Ont.
Ottawa Civic Hospital	Ottawa, Ont.
Ottawa General Hospital	Ottawa, Ont.
Kingston General Hospital	Kingston, Ont.
Hospital for Sick Children	Toronto, Ont.
Mount Sinai Hospital	Toronto, Ont.
St. Joseph's Hospital	Toronto, Ont.
St. Michael's Hospital	Toronto, Ont.
Toronto East General Hosp.	Toronto, Ont.
Toronto General Hospital	Toronto, Ont.
Toronto Western Hospital	Toronto, Ont.
Women's College Hospital	Toronto, Ont.
Brantford General Hospital	Brantford, Ont.
St. Joseph's Hospital	London, Ont.
Victoria Hospital	London, Ont.
Metropolitan General Hosp	Windsor, Ont.
Hotel Dieu of St. Joseph Hosp.	Windsor, Ont.
Children's Hospital	Winnipeg, Man.
Misericordia Hospital	Winnipeg, Man.
Winnipeg General Hospital	Winnipeg, Man.
St. Boniface Hospital	St. Boniface, Man.
Regina Grey Nuns' Hospital	Regina, Sask.
Regina General Hospital	Regina, Sask.
Saskatoon City Hospital	Saskatoon, Sask.
Edmonton General Hospital	Edmonton, Alta.
Misericordia Hospital	Edmonton, Alta.
Royal Alexandra Hospital	Edmonton, Alta.
University of Alberta Hosp	Edmonton, Alta.
St. Paul's Hospital	Vancouver, B. C.
Vancouver General Hospital	Vancouver, B. C.
Royal Jubilee Hospital	Victoria, B. C.
St. Joseph's Hospital	Victoria, B. C.

NOTES

* Majority of patients available for teaching purposes.
† Straight internships following previous intern training are included in residency list. Total house staff, 200.
(a) In lieu of maintenance.
(b) Salary established by government pay tables.
(c) $30 per month second year.
(d) January, July, October.
(e) Bonus of $60.
(f) Bonus of $25.
(g) Bonus of $100.
(h) Jan., March, July, September, November.
(i) Bonus of $120.
(j) Bonus of $100.
(k) March, July, November.
(m) January, July, September.
(n) Quarterly.
(o) January, April, September.
(p) Bonus of $50.
(q) Every two months.
(r) April, July, October.
(s) Bonus of $300.
(t) Bonus of $150.
(u) Bonus of $75.
(v) January, April, July, August.
(w) January, May, September.
(x) July, September, October.
(y) Every six weeks.
(z) Bonus of $180.
(aa) $10 per month second year.
(bb) $25 per month first year; $50 per month second year; bonus of $100.
(cc) March, June, September, December.
(dd) February, June, October.
(ee) $20 per month second year.
(ff) $25 per month for 4 months; $50 per month for 8 months; bonus of $100.
(gg) Bonus of $125.
(hh) Bonus of $30.
(ii) February, June, July, October.
(jj) $20 per month after 12 months' service.
(kk) July, September, November.
(mm) Bonus of $240.
(nn) Net salary $75 per month. Appointments made by Chief of Office, The Panama Canal, Washington, D. C.
(pp) Prefer aspirants going into foreign missions or boys born and raised in Hawaii.
(qq) All internships reserved for the fifth year students of the College of Medicine, University of the Philippines.

1. Women interns admitted.
2. Women interns only.

Affiliation as Referred to in Column Headed: "Affiliated Service"

3. Patton State Hospital, Patton, psychiatry.
4. Los Angeles County Hospital, obstetrics.
5. Children's Hospital, Los Angeles Maternity Service, pediatrics, obstetrics.
6. Fairmont Hospital, San Leandro, and Arroyo-Del Valle Sanatorium, Livermore, medicine, surgery, tuberculosis.
7. Woman's Hospital, Pasadena, obstetrics.
8. Mercy Hospital, San Diego, obstetrics, gynecology, pediatrics.
9. Laguna Honda Home Infirmary, San Francisco, chronic diseases; Hassler Health Home, Redwood City, tuberculosis.
10. St. Francis Hospital, San Francisco, obstetrics; Stanford University Hospitals, pediatrics.
11. Franklin Hospital, San Francisco, obstetrics, gynecology, pediatrics.
12. Santa Barbara General Hospital, general.
13. Boulder County Hospital, obstetrics, surgery; Porter Sanitarium and Hospital, Denver, general.
14. Delaware State Hospital, Farnhurst, psychiatry.
15. Gallinger Municipal Hospital, Washington, pediatrics, tuberculosis, communicable diseases.
16. Gallinger Municipal Hospital, Children's Hospital, Washington, obstetrics, pediatrics.
17. Grady Hospital, Atlanta, pediatrics.
18. Grady Hospital, obstetrics.
19. Misericordia Hospital and Home for Infants, Chicago, obstetrics.
20. Municipal Contagious Disease Hospital, Chicago; Winfield Sanatorium, Winfield, tuberculosis.
21. Winfield Sanatorium, Winfield, tuberculosis.
22. Chicago Maternity Center, obstetrics, gynecology, pediatrics.
23. East Moline State Hospital, psychiatry; Rock Island County Tuberculosis Sanatorium.
24. Rockford Municipal Tuberculosis Sanatorium.
25. Rotation service established between Broadlawns and approved private hospitals.
26. Watkins Memorial Hospital, Lawrence.
27. Sedgwick County Hospital, Wichita, general, outpatient service.
28. Salvation Army Home and Hospital, Sedgwick County Hospital, Wichita, obstetrics, general.
29. Children's Free Hospital and Louisville City Hospital, pediatrics, obstetrics, gynecology.
30. Children's Free Hospital, Louisville, pediatrics; Waverly Hills Sanatorium, Waverly Hills, tuberculosis.
31. Children's Free Hospital, Louisville.
32. Charity Hospital, New Orleans, obstetrics, gynecology, pediatrics.
33. Johns Hopkins Hospital, Baltimore, pathology.
34. Sydenham Hospital, University Hospital, Baltimore, communicable diseases, pediatrics, obstetrics.
35. Sydenham Hospital, Baltimore, communicable diseases.
36. Children's Hospital, Boston, pediatrics; Worcester State Hospital, Worcester, psychiatry.
37. Evangeline Booth Maternity Hospital and Home, Boston.
38. Long Island Hospital, Boston.
39. Norfolk County Hospital, South Braintree, tuberculosis.
40. Shriners Hospital for Crippled Children, Health Department Hospital, Wesson Maternity Hospital, Springfield, orthopedics, communicable diseases, obstetrics.
41. Health Department Hospital, Wesson Maternity Hospital, Springfield, communicable diseases, obstetrics.
42. Herman Kiefer Hospital, Detroit.
43. Herman Kiefer Hospital, Children's Hospital, Detroit, communicable diseases, obstetrics, pediatrics.
44. Grace Hospital, Detroit, general.
45. Herman Kiefer Hospital, communicable diseases, tuberculosis; St. Joseph's Retreat, Dearborn, neurology.
46. Genesee County Infirmary, Flint, obstetrics, general.
47. Christian Psychopathic Hospital, Sunshine Sanatorium, Grand Rapids, psychiatry, tuberculosis; Kalamazoo State Hospital, psychiatry.
48. Ingham Sanatorium, Lansing, tuberculosis.
49. Oakland County Contagious Hospital, Oakland County Tuberculosis Sanatorium, Pontiac State Hospital, Pontiac.
50. Miller Memorial Hospital, Duluth, outpatient service.
51. Gillette State Hospital for Crippled Children, St. Paul.
52. Shriners Hospital for Crippled Children, Minneapolis.
53. Children's Hospital, St. Paul, pediatrics.
54. St. Louis Children's Hospital, Shriners Hospital for Crippled Children, St. Louis City Hospital, pediatrics, fractures.
55. Jewish Sanatorium, Robertson, tuberculosis; City Isolation Hospital, St. Louis, communicable diseases.
56. Alexian Brothers Hospital, St. Louis, neurology, outpatient service.
57. City Isolation Hospital, communicable diseases; Robert Koch Hospital, tuberculosis; City Sanitarium, psychiatry.
58. City Isolation Hospital, St. Louis.
59. St. Elizabeth Hospital, Elizabeth, obstetrics and gynecology.
60. "Bergen Pines" Bergen County Hospital, Ridgewood, tuberculosis, communicable diseases.
61. Margaret Hague Maternity Hospital, Jersey City.
62. New Jersey State Hospital, Marlboro, psychiatry.
63. Fairview Sanatorium, New Lisbon, tuberculosis.
64. Anthony N. Brady Maternity Hospital, Albany.
65. Kingston Avenue Hospital, Brooklyn, communicable diseases.
66. Brooklyn Thoracic Hospital, tuberculosis.
67. Emergency Hospital of the Sisters of Charity, St. Mary's Infant Asylum and Maternity Hospital, Providence Retreat, Buffalo.
68. Chemung County Sanatorium, Elmira, tuberculosis.
69. Binghamton State Hospital, psychiatry.
70. Ulster County Tuberculosis Hospital, Kingston.
71. Jewish Maternity Hospital, New York City.
72. Berwind Free Maternity Clinic, New York City; New York State Hospital, Ray Brook, tuberculosis.
73. Strong Memorial Hospital, Rochester, surgery.
74. Misericordia Hospital, New York City, obstetrics, pediatrics.
75. Rotation service established between Hospital of the Good Shepherd, Syracuse Memorial Hospital, City Hospital and Syracuse Psychopathic Hospital.
76. Children's Hospital, Akron, pediatrics.
77. Molly Stark Sanatorium, Canton, tuberculosis; Massillon State Hospital, Massillon, psychiatry.
78. Children's Hospital, Cincinnati, pediatrics.
79. Hamilton County Tuberculosis Sanatorium, Hamilton County Home and Chronic Disease Hospital, Cincinnati.
80. Longview State Hospital, Cincinnati, psychiatry.
81. Cincinnati General Hospital, pediatrics, otolaryngology.
82. St. Ann's Maternity Hospital, Cleveland.
83. Children's Hospital, Columbus, pediatrics.
84. St. Ann's Infant Asylum and Maternity Hospital, Children's Hospital, Columbus, obstetrics, pediatrics.
85. Stillwater Sanatorium, Dayton, tuberculosis.
86. Shriners Hospital for Crippled Children, Portland.
87. Hospital of the University of Pennsylvania, Philadelphia, obstetrics.
88. Philadelphia Hospital for Contagious Diseases.
89. Children's Hospital of the Mary J. Drexel Home, Philadelphia, pediatrics.
90. Henry Phipps Institute of the University of Pennsylvania, Philadelphia, tuberculosis.
91. Children's Hospital, Philadelphia, pediatrics.
92. Shriners Hospital for Crippled Children, Philadelphia Hospital for Contagious Diseases.
93. St. Vincent's Hospital for Women and Children, Philadelphia, obstetrics, gynecology, pediatrics.
94. Pennsylvania Hospital, Department for Mental and Nervous Diseases, Philadelphia.
95. Rosella Foundling and Maternity Hospital, Municipal Hospital for Contagious Diseases, Pittsburgh.
96. Elizabeth Steel Magee Hospital, Children's Hospital, Eye and Ear Hospital, Pittsburgh.
97. Municipal Hospital for Contagious Diseases, Pittsburgh.
98. Berks County Tuberculosis Sanatorium, Reading.
99. Scranton State Hospital, obstetrics.
100. Providence Lying-In Hospital.
101. Children's Hospital, Pine Breeze Sanatorium, Chattanooga, pediatrics, tuberculosis.
102. Willard Parker Hospital, New York City, pediatrics.
103. Woodlawn Hospital, Dallas, tuberculosis.
104. Houston Tuberculosis Hospital.
105. Mission Home, San Antonio, obstetrics.
106. Spohn Hospital, Corpus Christi, general.
107. Gulf, Colorado and Santa Fe Hospital, Temple, medicine, surgery.
108. Utah State Hospital, Provo, psychiatry.
109. Blue Ridge Sanatorium, Charlottesville, tuberculosis.
110. Henry A. Wise Hospital for Contagious Diseases, Norfolk.
111. Norfolk General Hospital, Florence Crittenton Home, Children's Clinic of the Kings Daughters, Norfolk, obstetrics, pediatrics.
112. Pine Camp Hospital, Brook Hill, tuberculosis.
113. King County Hospital, Seattle, outpatient service.
114. Children's Orthopedic Hospital, Florence Crittenton Home, Seattle.
115. Firlands Sanatorium and Isolation Hospital, Richmond Highlands, tuberculosis, communicable diseases; Children's Orthopedic Hospital, Seattle, pediatrics, orthopedics.
116. King County Hospital, Seattle, obstetrics, gynecology, pediatrics.
117. Edgecliff Sanatorium, Spokane, tuberculosis.
118. Edgecliff Sanatorium, Salvation Army Women's Hospital and Home, Spokane, tuberculosis, obstetrics.
119. Mount Washington Sanatorium, Eau Claire, tuberculosis.
120. Milwaukee Children's Hospital, South View Hospital, Milwaukee, pediatrics, communicable diseases; Milwaukee Sanitarium, Wauwatosa, psychiatry.
121. Milwaukee Children's Hospital, pediatrics.
122. Salvation Army Martha Washington Women's Home and Hospital, Wauwatosa.
123. South View Hospital, Milwaukee, communicable diseases.
124. Kaulkeolani Children's Hospital, Honolulu.

APPROVED RESIDENCIES AND FELLOWSHIPS

Hospitals, 518; Residencies, 3,951; Fellowships, 611

The following institutions approved by the Council on Medical Education and Hospitals are considered in position to furnish acceptable training in various specialties as indicated below. Residencies in specialties, as defined by the Council, are straight services of one or more years following an approved internship. A fellowship is a form of apprenticeship which in some cases is indistinguishable from a residency, although it usually offers greater opportunity for the study of basic sciences and research. Ordinarily a fellowship is a university rather than a hospital appointment. Mixed residencies are general hospital assignments following internship. (They include services classified as general residencies and chief residencies.)

The star (*) indicates hospitals that are also approved for the training of interns. All hospitals on the approved intern list are likewise accredited for general or mixed residencies.

INDEX TO LIST

	Page		Page		Page
1. Anesthesiology	842	11. Mixed residency	846	21. Pediatrics	852
2. Cardiology	842	12. Neurology	846	22. Physical therapy	854
3. Communicable diseases	842	13. Neurosurgery	846	23. Plastic surgery	854
4. Dermatology and syphilology	843	14. Obstetrics	846	24. Psychiatry	854
5. Epilepsy	843	15. Obstetrics-gynecology	847	25. Radiology	855
6. Fractures	843	16. Ophthalmology	848	26. Surgery	856
7. Gynecology	843	17. Ophthalmology-otolaryngology	848	27. Thoracic surgery	858
8. Malignant diseases	843	18. Orthopedic surgery	849	28. Traumatic surgery	859
9. Medicine	843	19. Otolaryngology	850	29. Tuberculosis	859
10. Mental deficiencies	846	20. Pathology	851	30. Urology	859

1. ANESTHESIOLOGY

		Chief of Service	Inpatients Treated [1]	Total Anesthetics	Inhalation Anesthetics	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Los Angeles County Hospital *	Los Angeles	I. Heissig	51,505	12,066	5,768	$75	1	0	0	4/1&10/1	12	3,844	2,075
White Memorial Hospital *	Los Angeles	C. F. McCuskey	6,579	4,587	1,331	$78	2	0	0	7/1	36	166	84
Stanford University Hospital *	San Francisco	A. Dutton	9,162	5,016	3,128	$25	0	2	0	7/1	24	212	120
Hartford Hospital *	Hartford, Conn	R. M. Tovell	17,107	11,561	7,492	$50	8	0	0	1/1&7/1	24	532	269
Research and Educational Hospital *	Chicago	R. Brunner	5,911	2,391	1,998	$50	2	0	0	7/1	12	173	148
University of Chicago Clinics *	Chicago	H. Livingstone	10,622	3,894	2,526	None	1	4	0	7/1	12+	251	203
Methodist Episcopal Hospital *	Indianapolis	J. M. Whitehead	22,363	12,116	8,223	$75	1	2	0	7/1	24	527	149
Boston City Hospital *	Boston	W. A. Noonan	42,750	6,084	1,737	$50	1	1	0	Varies	12+	1,973	645
Massachusetts General Hospital *	Boston	H. K. Beecher	13,016	8,740	.....	$41	1	0	0	7/1	24	570	295
Massachusetts Memorial Hospitals *	Boston	E. Ferguson	7,569	3,220	2,407	$50	1	1	0	1/1&7/1	12	192	139
Harper Hospital *	Detroit	F. J. Murphy	16,794	10,565	5,337	$25	0	1	0	7/1	12	492	127
University Hospitals *	Minneapolis	R. Knight	9,347	4,815	3,840	$50	0	0	2	7/1	36	423	344
Mayo Foundation	Rochester, Minn	(See page 860)											
Jersey City Hospital *	Jersey City, N. J		24,592	10,413	7,546	$100	4	0	0	7/1	12	1,157	210
Albany Hospital *	Albany, N. Y	F. A. D. Alexander	12,068	4,783	4,325	$50	2	1	0	7/1	36	401	280
Bellevue Hospital *	New York City	E. A. Rovenstine	65,352	.....	.....	Varies	11[g]	0	0	Varies	36	2,513	754
Flower-Fifth Avenue Hospital *	New York City	D. E. Brace	8,449	4,890	3,960	$50	1	0	0	7/1	12	276	75
French Hospital *	New York City	S. H. Lesinger	5,517	3,177	1,434	$50	1	0	1	10/1	12	150	42
Lincoln Hospital *	New York City	P. M. Wood	9,740	3,667	3,181	$100	2	0	0	1/1&7/1	24	617	212
Metropolitan Hospital *	New York City	D. E. Brace	10,118	2,159	2,009	$100	3	0	0	7/1	12	514	240
New York Polyclinic Medical School and Hospital *	New York City		8,722	4,099	2,238	$101	3	0	0	10/1	24	179	51
New York Post-Graduate Medical School and Hospital *	New York City	M. C. Peterson	9,202	5,911	4,402	$50	1	2	0	7/1&11/1	24	271	106
Grasslands Hospital *	Valhalla, N. Y	R. B. Hammond	5,652	1,724	1,152	$95	1	1	0	Varies	36	386	267
Huron Road Hospital *	East Cleveland, O	R. J. Whitacre	7,293	4,695	3,417	$40	1	0	0	7/1	12	223	93
State University and Crippled Children's Hospital *	Oklahoma City	H. E. Doudna	6,535	3,540	2,887	$50	3	0	0	7/1	12	369	164
University of Oregon Medical School Hospitals and Clinics *	Portland	J. Hutton	7,874	4,846	3,024	$45	1	1	1	7/1	24	638	336
Hahnemann Hospital *	Philadelphia	J. M. Godfrey	12,683	7,513	.....	$50	1	0	0	9/1	12	417	181
Rhode Island Hospital *	Providence	F. H. Mathews	8,147	.....	.....	$50	1	0	0	7/1	12	765	295
State of Wisconsin General Hospital *	Madison	R. M. Waters	11,689	4,391	3,791	$25	3	3	0	7/1	36	383	251
Columbia Hospital *	Milwaukee	H. A. Cunningham	3,561	.....	.....	$50	1	0	0	7/1	12	120	72

2. CARDIOLOGY

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Indiana University Hospitals *	Indianapolis	G. S. Bond	.....	83	235	$33	1	0	0	7/1	24	...	...
Pennsylvania Hospital *	Philadelphia	W. D. Stroud	.....	31	3,825	$33	0	0	1	7/1	36	3	1
St. Francis Hospital *	Pittsburgh	A. P. D'Zmura	568	24	250	...	1	0	1	9/1	12	19	4
Rhode Island Hospital *	Providence, R. I	F. T. Fulton	2,743	.....	826	$50	1	0	0	7/1	12	...	...

3. COMMUNICABLE DISEASES

Los Angeles County Hospital *	Los Angeles	P. Hamilton	3,237	100	.....	$175	3	0	0	Varies	12+	199	102
Hospital for Children *	San Francisco	E. B. Shaw	109	6	.....	$50	1	0	0	7/1	36	1	0
Municipal Hospitals *	Hartford, Conn	C. L. Thenebe	531	100	.....	$125	1	0	0	7/1	12	25	3
Municipal Contagious Disease Hospital	Chicago		4,898	99	.....	$100	6	0	0	1/1&7/1	..	156	118
Sydenham Hospital	Baltimore	H. L. Hodes	1,313	89	.....	$40	1	1	0	7/1	12	86	43
Boston City Hospital *	Boston	E. H. Place	1,731	88	.....	$125	2	0	0	Varies	12+	16	9
Belmont Hospital	Worcester, Mass		591	.....	.....	$133	4	0	0	Varies	12+	7	2
Herman Kiefer Hospital	Detroit	D. C. Young	4,306	97	.....	$150	5	0	0	7/1	12	168	87
Kansas City General Hospital *	Kansas City, Mo	C. Ferris	504	100	.....	$50	1	0	0	7/1	12	23	20
City Isolation Hospital	St. Louis	G. S. Bozalis	2,509	95	.....	$75	0	1	0	7/1	12	150	83
Essex County Hospital for Contagious Diseases	Belleville, N. J	H. O. Bell	2,599	90	.....	$50	2	0	0	1/1&7/1	12	58	26
Kingston Avenue Hospital	Brooklyn	M. B. Gordon	3,643	100	.....	$100	6	0	0	1/1&7/1	24	89	29
Queens General Hospital *	Jamaica, N. Y	W. C. A. Steffen	794	100	.....	$100	2	0	0	7/1	12	18	16
Willard Parker Hospital	New York City	B. W. Hamilton	6,515	96	.....	$100	8	0	0	1/1&7/1	36	111	65
City Hospital *	Cleveland	H. J. Gerstenberger	2,061	85	.....	$42	1	1	0	7/1	12	93	39

Numerical and other references will be found on page 860.

4. DERMATOLOGY AND SYPHILOLOGY

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Los Angeles County Hospital ★	Los Angeles	K. Frost	444	100	43,649	$10	2	0	0	7/1	24	10	8
University of California Hospital ★	San Francisco	W. J. Kerr	7	.....	8,563	$25	0	2	0	7/1	12	0	0
Georgetown University Hospital ★	Washington, D. C.	F. Eichenlaub	48	5	12,263	$75	0	0	1	7/1	12	1	0
University of Chicago Clinics ★	Chicago	S. W. Becker	.....	39	16,109	None	0	1	3	7/1	12	2	1
University Hospitals ★	Iowa City	R. Nomland	300	87	2,232	$21	1	1	0	7/1	72	2	1
Boston City Hospital ★	Boston	W. P. Boardman	161	88	47,412	$100	1	0	0	Varies	12+	6	0
Massachusetts General Hospital ★	Boston	C. G. Lane	381	43	50,934	$41	1	1	0	7/1	24	4	2
University Hospital ★	Ann Arbor, Mich.	U. J. Wile	1,432	82	12,203	$25	2	2	0	7/1	36	9	4
Minneapolis General Hospital ★	Minneapolis	S. E. Sweitzer	311	85	.....	$25	0	0	1	1/1&7/1	36	1	0
University Hospitals ★	Minneapolis	J. C. McKinley	137	69	10,630	$50	1	0	0	1/1&7/1	36	2	0
Mayo Foundation	Rochester, Minn.	(See page 860)											
Barnard Free Skin and Cancer Hospital	St. Louis	M. F. Engman	53	100	10,937	$25	1	0	0	7/1	12	1	0
Kings County Hospital ★	Brooklyn	A. Potter	820	100	10,639	$100	1	0	0	10/1	12	17	1
Edward J. Meyer Memorial Hospital (Buffalo City Hospital) ★	Buffalo	E. Osborne	465	86	10,304	$59	1	2	1	7/1	48	7	2
Bellevue Hospital ★	New York City	E. R. Maloney	787	100	.....	Varies	3[4]	0	0	1/1&7/1	18	...	...
Metropolitan Hospital ★	New York City	F. M. Dearborn	124	.....	21,354	$15	1	0	0	7/1	12	3	0
Montefiore Hosp. for Chronic Diseases ★	New York City	F. Wise	23	88	.....	$25	1	0	0	7/1	12	3	2
New York City Hospital ★	New York City	J. J. Eller	1,038	100	28,060	$100	1	0	0	7/1	12	30	6
New York Post-Graduate Medical School and Hospital ★	New York City	G. M. MacKee	211	17	116,593	None	1	2	0	1/1&7/1	24	1	0
Cincinnati General Hospital ★	Cincinnati	E. B. Tauber	459	87	5,418	[a]	1	2	0	7/1	24	22	8
City Hospital ★	Cleveland	H. N. Cole	593	85	28,217	$42	1	1	0	7/1	12	12	10
University Hospitals ★	Cleveland	H. N. Cole	156	30	35,549	$25	1	1	0	7/1	24	3	2
Skin and Cancer Hospital	Philadelphia	A. Strickler	.....	13	50,891	$30	2	0	0	1/1	24	0	0
Pittsburgh Skin and Cancer Foundation	Pittsburgh	L. Hollander	.....	.....	36,000	$150	2	0	0	7/1	36	...	...
University of Virginia Hospital ★	Charlottesville	D. C. Smith	151	28	8,379	$50	1	2	0	7/1	36	3	1

5. EPILEPSY

Monson State Hospital	Palmer, Mass.	M. B. Hodskins	1,533	97	.....	$10	1	0	0	Varies	12	61	24

6. FRACTURES

Denver General Hospital ★ [10]	Denver	H. W. Wilcox	620	100	4,985	$50	1	0	0	7/1	12	63	41
City of Detroit Receiving Hospital ★	Detroit	A. D. La Ferte	1,046	100	10,855	$83	1	1	0	7/15	24	...	...
Rhode Island Hospital ★	Providence	M. S. Danforth	538	.....	.....	$50	1	0	0	7/1	12	33	13

7. GYNECOLOGY

Hospital for Children ★	San Francisco	H. A. Stephenson	437	6	1,352	$25	1	1	0	7/1	36	2	1
Passavant Memorial Hospital ★	Chicago	A. H. Curtis	552	6	.....	None	1	0	0	1/1&7/1	12	3	1
Indiana University Hospitals ★	Indianapolis	C. Habich	774	83	2,626	$33	1	0	0	7/1	12	6	4
Touro Infirmary ★	New Orleans	H. E. Miller	1,095	35	5,037	$25	1	0	0	7/1	12	19	11
Johns Hopkins Hospital ★	Baltimore	T. S. Cullen	1,738	44	3,226	None	1	4	0	7/1&9/1	60	16	13
University Hospital ★	Baltimore	J. M. Hundley	688	49	5,689	$25	1	1	0	7/1	48	16	8
Free Hospital for Women	Brookline, Mass.	F. A. Pemberton	2,352	77	15,899	$83	1	3	0	1/1	12	18	11
Jersey City Hospital ★	Jersey City, N. J.	.....	656	92	1,088	$100	1	1	0	1/1&7/1	12	18	2
Albany Hospital ★	Albany, N. Y.	A. J. Wallingford	2,190	60	1,255	$25	1	1	0	7/1	36	14	10
Buffalo General Hospital ★	Buffalo	J. E. King	1,135	8	4,174	$25	0	1	0	7/1	12	16	11
Harlem Hospital ★	New York City	H. C. Falk	1,474	98	15,640	$15	1	1	0	1/1&7/1	12	51	11
Mount Sinai Hospital ★	New York City	.....	.....	57	21,011	$50	1	1	2	1/1&7/1	12	...	...
New York Polyclinic Medical School and Hospital ★	New York City	.....	750	12	4,652	None	1	0	0	7/1	24	10	0
New York Post-Graduate Medical School and Hospital ★	New York City	W. Dannreuther	497	17	29,776	$90	1	0	0	10/1	12	4	1
Syracuse Memorial Hospital ★	Syracuse, N. Y.	N. P. Sears	655	46	.....	None	1	0	0	7/1	12	2	1
University Hospitals ★	Cleveland	W. H. Weir	1,364	30	10,432	$25	1	3	0	7/1	24	9	3
Starling-Loving University Hospital ★	Columbus, O.	F. Fletcher	412	50	872	$25	1	1	0	7/1	12	7	3
Graduate Hospital of the University of Pennsylvania ★	Philadelphia	W. R. Nicholson	505	45	2,951	None	1	0	0	7/1	12	14	5
Woman's Hospital ★	Philadelphia	.....	472	19	1,850	$25	1	0	0	10/1	12	5	1
Elizabeth Steel Magee Hospital	Pittsburgh	B. Z. Cashman	1,527	35	1,558	$41	1	1	0	9/1	60	30	14
St. Francis Hospital ★	Pittsburgh	B. Z. Cashman	813	24	1,167	$80	1	0	0	9/1	36	22	7
John Gaston Hospital ★	Memphis, Tenn.	W. T. Black	939	98	8,918	$65	1	0	0	7/1	12	41	5

8. MALIGNANT DISEASES

Los Angeles County Hospital ★	Los Angeles	H. P. Jacobson	903	100	4,893	$10	2	0	0	7/1	36	182	92
Albert Steiner Clinic for Cancer and Allied Diseases	Atlanta, Ga.	E. P. Walker and J. W. Yeomans	551	100	40,222	$75	1	1	0	7/1	24	32	32
Michael Reese Hospital ★ [25]	Chicago	E. M. Uhlmann	2,000	44	1,546	...	2	0	0	1/1&7/1	36	122	69
Collis P. Huntington Memorial Hosp.	Boston	C. C. Simmons	5,422	26	12,042	$125	2	2	0	7/1&9/1	60	14	12
Westfield State Sanatorium	Westfield, Mass.	E. M. Daland	621	56	3,341	$150	3	0	0	6/1&12/1	24	59	55
Pondville Hospital	Wrentham, Mass.	E. M. Daland	1,526	.....	5,727	$150	8	0	0	Varies	12	243	156
Eloise Hospital ★	Eloise, Mich.	.....	450	96	1,190	$110	1	0	0	9/1	12	170	73
Barnard Free Skin and Cancer Hospital	St. Louis	W. E. Leighton and F. J. Taussig	900	100	9,037	$25	2	0	0	7/1	12	29	12
Jersey City Hospital ★	Jersey City, N. J.	.....	385	92	3,433	$100	1	1	0	7/1	24	64	12
Brooklyn Cancer Institute	Brooklyn	W. E. Howes	944	100	.....	$50	2	4	0	1/1&7/1	24	219	79
Meadowbrook Hospital ★	Hempstead, N. Y.	R. Derby	392	90	2,882	$100	1	0	0	7/1	12	75	47
Memorial Hospital for the Treatment of Cancer and Allied Diseases	New York City	J. Ewing	2,712	4	50,759	$125	2	6	9	1/1&7/1	36	138	66
New York City Cancer Institute Hosp.	New York City	I. I. Kaplan	1,049	100	12,590	$50	4	4	0	1/1&7/1	16	634	89
American Oncologic Hospital	Philadelphia	G. M. Dorrance	430	55	7,208	$100	2	0	0	7/1	24	21	15
Jeanes Hospital	Philadelphia	R. W. Teahan	638	22	7,093	$50	2	0	1	7/1	36	83	55

9. MEDICINE

Hillman Hospital ★	Birmingham, Ala.	J. S. McLester and H. R. Carter	2,069	100	16,225	$60	1	0	0	7/1	12	457	108
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company ★	Fairfield, Ala.	G. F. Walsh	1,616	.....	9,781	$150	1	0	0	7/1	12	146	34
Baptist State Hospital ★	Little Rock, Ark.	J. N. Compton	1,296	11	200	$100	1	0	0	7/1	24	40	16
General Hospital of Fresno County ★	Fresno, Calif.	R. B. Tupper and W. E. Schottstaedt	3,315	100	.....	$65	1	0	0	7/1	12	522	155
Cedars of Lebanon Hospital ★	Los Angeles	.....	1,510	19	.....	$75	1	0	0	7/1	12	131	54
Los Angeles County Hospital ★	Los Angeles	E. R. Ware	9,264	100	61,707	$10	8	0	0	7/1	36	1,678	751
White Memorial Hospital ★	Los Angeles	D. D. Comstock	982	.....	21,704	$78	1	1	0	7/1	36	62	30
Alameda County Hospital ★	Oakland, Calif.	.....	2,468	92	.....	$40	2	2	0	7/1	36	469	229
Collis P. and Howard Huntington Memorial Hospital ★	Pasadena, Calif.	W. E. Nichols	1,257	3	11,513	$100	1	0	0	7/1	12	130	75
San Diego County General Hospital ★	San Diego, Calif.	E. M. Fetter	5,712	100	9,149	$75	2	0	0	7/1	12	590	178

Numerical and other references will be found on page 860.

9. MEDICINE—Continued

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Hospital for Children ★	San Francisco	D. Atkinson	425	6	6,636	$25	1	1	0	7/1	12	24	4
Mount Zion Hospital ★	San Francisco	L. H. Briggs	1,062	21	11,744	$50	1	0	0	6/15	12	128	64
St. Luke's Hospital ★	San Francisco	H. P. Hill	1,635	8	3,849	$75	1	0	0	7/1	12	110	56
San Francisco Hospital ★	San Francisco	L. H. Briggs and G. D. Barnett	3,287	100	.....	[a]	6	0	0	7/1	12+	...	...
Stanford University Hospitals ★	San Francisco	A. Bloomfield	1,945	1	18,797	$25	1	6	0	7/1	48	100	51
University of California Hospitals ★	San Francisco	W. J. Kerr	1,814	.....	34,045	$25	1	5	0	7/1	48	76	51
Santa Clara County Hospital ★	San Jose, Calif.	G. Gray	2,024	100	.....	$75	1	0	0	7/1	12	...	...
Fairmont Hospital of Alameda County	San Leandro, Calif.	.....	1,043	100	.....	$155	0	1	0	7/1	12	361	121
Colorado General Hospital ★ [8]	Denver	J. Waring	769	62	23,971	$40	1	0	0	7/1	24	99	74
Denver General Hospital ★	Denver	M. Katzman	1,137	100	.....	$50	2	0	0	7/1	12	545	98
Grace Hospital ★	New Haven, Conn.	S. J. Goldberg	999	10	2,107	$90	1	0	0	7/1	24	154	55
New Haven Hospital ★	New Haven, Conn.	F. G. Blake	1,325	39	17,070	[a]	1	4	0	1/1&7/1	12+	200	116
Central Dispensary and Emergency Hospital ★	Washington, D. C.	H. M. Kaufman	1,982	16	7,249	$41	1	1	0	6/15	24	84	22
Freedmen's Hospital (col.) ★	Washington, D. C.	R. L. Gregory	770	85	6,498	$10	0	3	0	7/1	24	130	54
Gallinger Municipal Hospital ★	Washington, D. C.	A. J. Sullivan	2,303	99	.....	$30	2	6	0	7/1	12	409	193
Garfield Memorial Hospital ★	Washington, D. C.	B. F. Weems	2,078	.....	2,895	$50	1	0	0	7/1	12	117	75
Duval County Hospital ★	Jacksonville, Fla.	L. Limbaugh	2,011	100	.....	$50	1	2	0	7/1	12	313	187
James M. Jackson Memorial Hospital ★	Miami, Fla.	K. S. Whitmer	6,885	.....	.....	$100	1	0	0	7/1	12	551	151
Grady Hospital ★	Atlanta, Ga.	.....	2,988	100	68,398	$25	1	2	0	7/1	24	517	204
St. Joseph Infirmary ★	Atlanta, Ga.	A. H. Bunce and J. H. Hines	1,052	15	1,500	$90	1	2	0	7/1	36	77	29
University Hospital ★	Augusta, Ga.	V. P. Sydenstricker	1,767	40	6,632	$40	1	2	0	7/1	12	244	81
Cook County Hospital	Chicago	C. C. Maher	17,990	100	24,406	$25	10	0	0	1/1&7/1	36	3,767	679
Mercy Hospital-Loyola Univ. Clinics ★	Chicago	R. S. Berghoff	2,154	17	.....	$50	1	0	0	7/1	36	118	24
Mount Sinai Hospital ★	Chicago	.....	1,623	.....	31,052	$30	1	0	0	7/1	12+	124	45
Norwegian American Hospital ★	Chicago	D. E. Markson	1,046	1	.....	$35	1	0	0	6/1	12	107	46
Passavant Memorial Hospital ★	Chicago	C. A. Elliott	1,306	6	.....	None	3	0	0	1/1&7/1	12	64	41
Presbyterian Hospital ★	Chicago	E. E. Irons	2,436	26	.....	$50	1	0	0	9/1	24	126	77
Provident Hospital (col.) ★	Chicago	J. L. Hall	579	68	25,460	$50	1	0	0	9/1	12	70	34
Research and Educational Hospital ★	Chicago	R. W. Keeton	507	100	.....	$50	3	0	0	7/1	36	60	59
St. Luke's Hospital ★	Chicago	A. R. Elliott	1,809	8	11,859	None	4	0	0	7/1	12	101	66
University of Chicago Clinics ★	Chicago	G. F. Dick	2,067	39	35,011	None	1	3	15	7/1	12	100	74
Wesley Memorial Hospital ★	Chicago	W. H. Holmes	318	23	.....	$35	1	0	0	7/1	12	17	8
Evanston Hospital ★	Evanston, Ill.	J. G. Carr	2,888	15	13,417	$83	0	0	1	1/1	24	85	60
Indianapolis City Hospital ★	Indianapolis	R. M. Moore	1,939	84	27,979	$42	2	0	0	7/1	12	382	188
Indiana University Hospitals ★	Indianapolis	J. O. Ritchey	1,011	83	4,139	$33	1	2	0	7/1	36	74	44
University Hospitals ★	Iowa City	F. M. Smith	2,078	87	3,162	$21	1	4	0	7/1	72	117	77
University of Kansas Hospitals ★	Kansas City, Kan.	R. H. Major	1,148	58	14,559	$50	1	2	0	7/1	36	93	64
Louisville City Hospital ★	Louisville, Ky.	J. W. Moore	1,730	98	95,961	$14	1	8	0	7/1	36	403	117
Charity Hospital ★	New Orleans	.....	9,089	100	64,606	$25	6	9	0	7/1	48	1,342	417
Touro Infirmary ★	New Orleans	C. L. Eshelman	1,280	35	10,366	$25	2	0	0	7/1	12	109	64
Baltimore City Hospitals ★	Baltimore	J. T. King, Jr.	3,621	92	918	$50	1	5	0	7/1	12	780	335
Church Home and Infirmary ★	Baltimore	Z. R. Morgan	455	25	.....	$25	1	0	0	7/1	12	47	31
Hospital for Women ★	Baltimore	W. Baetjer	340	16	1,440	$40	1	0	0	7/1	12	20	4
Johns Hopkins Hospital ★	Baltimore	W. T. Longcope	3,809	44	43,333	None	1	6	12	7/1&9/1	84	273	201
Maryland General Hospital ★	Baltimore	E. B. Freeman	629	28	897	$25	1	1	0	7/1	24	95	18
Mercy Hospital ★	Baltimore	M. C. Pincoffs	1,774	62	2,806	$25	1	2	0	7/1	24	122	40
Provident Hospital and Free Dispensary (col.) ★	Baltimore	T. Sprunt	281	77	218	$35	1	0	0	10/15	24	70	5
St. Agnes' Hospital ★	Baltimore	J. T. O'Mara	767	33	2,685	None	1	0	0	7/1	12	119	23
St. Joseph's Hospital ★	Baltimore	C. Smink and H. M. Stein	806	40	2,894	$10	1	1	0	7/1	24	156	39
Sinai Hospital ★	Baltimore	C. R. Austrian	1,220	38	13,346	$50	1	2	0	7/1	12	147	37
South Baltimore General Hospital ★	Baltimore	G. McLean	275	47	2,044	$35	1	0	0	7/1	36	59	12
Union Memorial Hospital ★	Baltimore	W. Baetjer	1,248	19	3,349	$40	1	2	0	7/1	24	106	30
University Hospital ★	Baltimore	M. C. Pincoffs	1,377	49	5,649	$25	1	3	0	7/1	48	153	72
West Baltimore General Hospital ★	Baltimore	J. N. Zierler	544	43	1,542	$20	1	0	0	7/1	12	68	15
Beth Israel Hospital ★	Boston	H. Linenthal	2,042	21	36,327	$79	1	0	0	7/1	12	141	57
Boston City Hospital ★	Boston	G. R. Minot	10,300	88	55,972	[a]	10	1	13	Varies	12+	1,506	418
Joseph H. Pratt Diagnostic Hospital	Boston	J. H. Pratt	598	25	21,734	$41	3	0	0	7/1	12	6	4
Massachusetts General Hospital ★	Boston	J. H. Means	1,717	43	24,214	$41	1	5	0	9/1	36	160	76
Massachusetts Memorial Hospitals, Robert Dawson Evans Department of Clinical Research and Preventive Medicine ★	Boston	R. Fitz	498	33	.....	$91	1	3	0	8/1	36	...	...
Peter Bent Brigham Hospital ★	Boston	H. A. Christian	.....	30	.....	$41	1	6	0	Varies	12+	228	131
Worcester City Hospital ★	Worcester, Mass.	M. M. Jordan	3,052	61	29,185	$75	1	0	0	1/1	12+	428	145
University Hospital ★	Ann Arbor, Mich.	C. C. Sturgis	4,778	82	40,975	$25	7	8	0	7/1	36	220	132
Alexander Blain Hospital	Detroit	R. L. Fisher	109	.....	.....	$75	1	0	0	7/1	12	8	1
City of Detroit Receiving Hospital ★	Detroit	G. B. Myers	3,718	100	11,944	$50	1	6	0	7/1	36	...	...
Grace Hospital ★	Detroit	G. B. Hoops	2,471	30	12,460	$50	1	1	0	9/1	24	357	102
Harper Hospital ★	Detroit	H. A. Freund	2,291	12	.....	$25	1	6	0	7/1	36	224	54
Henry Ford Hospital ★	Detroit	F. J. Sladen	3,310	.....	69,283	$130	6	19	0	9/1	12	180	70
Providence Hospital ★	Detroit	L. Maino	1,590	10	.....	$100	1	0	0	7/1	12	...	...
Woman's Hospital	Detroit	B. I. Johnstone	542	4	1,054	$75	1	1	0	7/1	24	47	23
Eloise Hospital (Dr. William J. Seymour Hospital) ★	Eloise, Mich.	M. R. McQuiggan	6,453	96	14,136	$91	1	1	0	7/1	..	501	174
Hurley Hospital ★	Flint, Mich.	M. S. Chambers	1,298	.....	.....	$41	0	1	0	7/1	12	244	63
Minneapolis General Hospital ★	Minneapolis	G. Fahr	2,617	85	.....	$25	0	0	4	1/1&7/1	36	366	168
University Hospitals ★	Minneapolis	J. C. McKinley	1,068	69	35,368	$50	1	0	3	1/1&7/1	36	150	114
Mayo Foundation	Rochester, Minn.	(See page 860)											
Ancker Hospital ★	St. Paul	A. R. Hall and A. Hoff	1,657	96	47,310	$50	6	0	0	7/1	12	283	193
St. Louis County Hospital ★	Clayton, Mo.	.....	1,561	98	22,697	$50	1	1	0	7/1	12+	184	107
Kansas City General Hospital ★	Kansas City, Mo.	A. B. Jones	2,390	100	10,945	$50	2	0	0	7/1	24	421	324
Barnes Hospital ★	St. Louis	D. P. Barr	3,638	12	26,292	$25	1	3	0	7/1	12	...	...
De Paul Hospital ★	St. Louis	E. P. Buddy	1,085	23	2,302	$50	1	1	0	7/1	24	170	42
Homer G. Phillips Hospital for Colored ★	St. Louis	D. Sexton	1,665	100	16,322	$75	1	1	0	7/1	36	421	139
Jewish Hospital ★	St. Louis	T. Sale	2,040	29	9,668	$35	1	2	0	7/1	12+	151	40
St. Louis City Hospital ★	St. Louis	F. Findley	4,007	100	.....	$50	3	6	0	7/1	24	697	323
St. Luke's Hospital ★	St. Louis	W. Baumgarten	828	14	.....	$50	1	0	0	7/1	24	...	...
St. Mary's Group of Hospitals ★	St. Louis	R. A. Kinsella	2,319	39	32,092	$25	0	0	7	7/1	34	185	78
Creighton Memorial St. Joseph's Hosp. ★	Omaha	A. Sachs	2,711	10	9,408	$50	1	0	0	7/1	12+	197	68
Jersey City Hospital ★	Jersey City, N. J.	.....	4,506	92	8,282	$100	1	2	0	1/1&7/1	12	833	121
Albany Hospital ★	Albany, N. Y.	L. W. Gorham	1,488	60	9,282	$25	1	2	0	7/1	36	90	70
Coney Island Hospital ★	Brooklyn	P. I. Nash	1,843	100	30,204	$100	1	0	0	7/1	12	325	79
Cumberland Hospital ★	Brooklyn	H. Joachim	1,012	100	51,401	$100	1	1	0	1/1&7/1	12	171	73
Jewish Hospital ★	Brooklyn	S. R. Blattels	1,939	36	22,924	$25	2	0	0	7/1	12	205	56
Kings County Hospital ★	Brooklyn	J. Crawford and M. Moses	15,530	100	82,559	$15	4	4	0	1/1&7/1	24	2,656	486

Numerical and other references will be found on page 860.

9. MEDICINE—Continued

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Long Island College Hospital ★	Brooklyn	T. Howard	1,356	19	16,353	$22	1	1	0	7/1	36	148	39
Norwegian Lutheran Deaconesses' Home and Hospital ★	Brooklyn	E. E. Cornwall	609	39	346	None	1	0	0	7/1	24	...	...
Buffalo General Hospital ★	Buffalo	A. H. Aaron	2,240	8	26,458	$25	1	6	0	7/1	12	275	118
Edward J. Meyer Memorial Hospital (Buffalo City Hospital) ★	Buffalo	C. J. Roberts	2,066	86	25,345	$50	1	2	1	7/1	48	336	98
Millard Fillmore Hospital ★	Buffalo	J. Mesmer	870	20	3,184	$25	1	0	0	7/1	12	86	21
Mary Imogene Bassett Hospital ★	Cooperstown, N. Y.	G. M. Mackenzie	716	5	3,799	$100	1	0	0	7/1	36	68	36
Meadowbrook Hospital ★	Hempstead, N. Y.	E. C. Jessup	796	90	.....	$75	1	0	0	7/1	12	122	64
Queens General Hospital ★	Jamaica, N. Y.	C. Boettiger	2,221	100	34,803	$15	1	1	0	7/1	24	401	231
Charles S. Wilson Memorial Hospital ★	Johnson City, N. Y.	E. M. Jones	1,350	1	.....	$75	1	3	0	7/1	12	113	59
Bellevue Hospital ★	New York City	.....	11,457	100	.....	Varies	5[e]	0	0	1/1&7/1	12	...	...
Flower-Fifth Avenue Hospital ★	New York City	L. J. Boyd	974	9	13,223	$50	1	0	0	7/1	12	114	19
Metropolitan Hospital ★ [27]	New York City	L. J. Boyd	2,709	.....	23,791	$100	5	0	0	7/1	12	452	117
Montefiore Hospital for Chronic Dis. ★	New York City	L. Lichtwitz	553	88	.....	$25	1	3	0	1/1&7/1	18	104	76
Mount Sinai Hospital ★ [28]	New York City	.....	.....	57	89,513	$125	1	1	2	1/1&7/1	12	...	...
New York City Hospital ★	New York City	W. I. Reardon	2,379	100	36,671	$100	2	0	0	7/1	12	456	162
New York Hospital ★	New York City	E. F. DuBois	1,611	17	104,710	None	1	8	0	7/1	60	124	82
New York Infirmary for Women and Children ★	New York City	M. Manter	828	34	4,656	$45	1	0	0	7/1	12	19	5
New York Polyclinic Medical School and Hospital ★	New York City	.....	760	12	9,451	None	1	0	0	7/1	24	60	8
New York Post-Graduate Medical School and Hospital ★	New York City	W. G. Lough	1,693	17	43,194	$90	1	0	0	7/1	12	106	41
Presbyterian Hospital ★	New York City	W. W. Palmer	3,873	28	67,309	$41	1	3	0	7/1	12	...	...
Genesee Hospital ★	Rochester, N. Y.	D. B. Jewett	1,332	.....	5,980	$75	1	2	0	7/1	12	122	48
Rochester General Hospital ★	Rochester, N. Y.	D. A. Haller	1,529	15	5,100	$25	1	1	0	7/1	12	130	73
Strong Memorial and Rochester Municipal Hospitals ★	Rochester, N. Y.	W. C. McCann	3,553	62	26,338	$41	1	6	0	7/1	24	349	212
Hospital of the Good Shepherd ★	Syracuse, N. Y.	E. C. Reifenstein	1,150	2	.....	$83	1	1	0	7/1	12	116	45
Grasslands Hospital ★	Valhalla, N. Y.	M. D. Touart	717	90	7,726	$75	1	1	0	7/1	24	156	104
Duke Hospital ★	Durham, N. C.	F. M. Hanes	4,043	67	19,787	$41	1	6	0	7/1	48	148	98
Watts Hospital ★	Durham, N. C.	W. R. Stanford	1,607	25	4,627	$50	1	0	0	7/1	12	111	26
City Hospital ★	Winston-Salem, N. C.	S. F. Pfohl	1,018	37	5,738	$50	2	0	0	7/1	24	126	50
Trinity Hospital ★	Minot, N. D.	.....	761	10	.....	...	1	0	0	7/1	36	69	56
City Hospital ★ [16]	Akron, O.	.....	1,429	36	6,993	$55	2	0	0	7/1	24	182	67
Mercy Hospital ★	Canton, O.	J. D. O'Brien	1,286	16	.....	$65	1	0	0	7/1	12	136	53
Christ Hospital ★	Cincinnati	.....	1,333	4	2,554	$75	2	0	0	6/25	12	127	36
Cincinnati General Hospital ★	Cincinnati	M. B. Blankenhorn	2,407	87	17,033	[a]	1	13	7	7/1	60	601	342
Deaconess Hospital ★	Cincinnati	F. C. Theiss	2,192	6	100	$75	1	0	0	7/1	12	159	39
Good Samaritan Hospital ★	Cincinnati	F. C. Theiss	3,445	10	2,588	$35	2	0	0	7/1	12	191	68
Jewish Hospital ★ [16]	Cincinnati	W. Stix	1,947	35	.....	$45	2	0	0	7/1	24	157	34
City Hospital ★	Cleveland	R. W. Scott	2,032	85	16,729	$42	1	4	0	7/1	12	545	248
Mount Sinai Hospital ★	Cleveland	S. S. Berger	1,662	23	19,201	$60	1	0	0	7/1	12	82	28
St. Alexis Hospital ★	Cleveland	H. V. Paryzek	1,292	55	11,157	$60	1	0	0	7/1	36	166	76
St. John's Hospital ★	Cleveland	R. K. Updegraff	1,294	17	.....	$50	1	0	0	7/1	24	116	35
St. Luke's Hospital ★	Cleveland	C. T. Way	3,010	18	36,098	$25	1	2	0	7/1	24	223	77
St. Vincent Charity Hospital ★	Cleveland	F. C. Oldenburg	1,570	32	13,541	$50	1	0	0	7/1	12	228	84
University Hospitals ★	Cleveland	J. T. Wearn	3,450	30	32,887	$25	2	7	4	7/1	24	302	188
Starling-Loving University Hospital ★	Columbus, O.	C. A. Doan	1,385	50	5,749	$25	2	2	0	7/1	12	166	89
Miami Valley Hospital ★	Dayton, O.	W. B. Bryant	2,631	29	.....	$75	1	0	0	7/1	12	261	72
Huron Road Hospital ★	East Cleveland, O.	A. B. Schneider	919	.....	.....	$60	1	0	0	7/1	12	97	38
Lucas County General Hospital ★	Toledo, O.	C. S. Mundy	1,893	100	22,233	$50	1	0	0	7/1	12	297	99
St. Elizabeth's Hospital ★	Youngstown, O.	R. B. Poling	1,463	36	.....	$50	1	0	0	7/1	12	179	44
Youngstown Hospital ★	Youngstown, O.	W. H. Bunn	1,574	25	.....	$50	1	0	0	7/1	12	205	61
St. Anthony Hospital ★	Oklahoma City	N. S. Matthews	4,810	9	.....	$50	1	0	0	7/1	12	218	52
State University and Crippled Children's Hospitals ★	Oklahoma City	G. A. La Motte	1,036	95	16,121	$50	1	1	0	7/1	24	109	50
University of Oregon Medical School Hospitals and Clinics ★	Portland, Ore.	L. Selling	1,668	100	28,186	$45	1	2	0	7/1	36	451	216
Abington Memorial Hospital ★	Abington, Pa.	G. M. Piersol	1,203	16	1,113	$25	1	0	0	7/1	12+	140	49
George F. Geisinger Memorial Hospital ★	Danville, Pa.	W. J. Stainsby	1,347	32	4,223	$50	1	0	0	9/1	12	114	42
Germantown Dispensary and Hospital ★	Philadelphia	.....	1,104	25	49,111	$110	1	0	0	7/1	12	122	52
Graduate Hospital of the University of Pennsylvania ★	Philadelphia	G. M. Piersol	1,240	45	25,276	None	1	0	0	7/1	12	80	33
Hahnemann Hospital ★	Philadelphia	G. H. Wells	1,368	30	21,264	$50	2	0	0	9/1	24	163	79
Hospital of the Univ. of Pennsylvania ★	Philadelphia	O. H. P. Pepper	2,147	29	23,616	None	1	0	6	7/1	12	120	75
Jefferson Medical College Hospital ★	Philadelphia	H. A. Reimann	2,268	75	1,094	$50	1	0	0	9/1	36	244	120
Jewish Hospital ★	Philadelphia	.....	1,304	29	.....	None	1	0	0	6/15	12	153	81
Pennsylvania Hospital ★	Philadelphia	D. L. Farley and G. G. Duncan	1,540	31	9,268	$20	0	0	2	7/1	36	195	115
Temple University Hospital ★	Philadelphia	C. L. Brown	1,096	30	34,457	$40	3	0	3	7/1	36	...	...
Woman's Hospital ★	Philadelphia	.....	565	19	2,106	$25	1	0	0	10/1	12	15	10
Allegheny General Hospital ★	Pittsburgh	E. W. Willetts	1,308	52	28,276	$85	1	0	0	9/1	12	204	62
Elizabeth Steel Magee Hospital	Pittsburgh	J. D. Heard	1,051	35	520	$83	1	0	1	9/1	24	...	...
Mercy Hospital ★	Pittsburgh	W. W. G. Maclachlan	1,505	30	.....	$112	1	0	2	7/1&9/1	24	158	72
St. Francis Hospital ★	Pittsburgh	T. G. Simonton	1,484	24	4,227	$80	1	0	0	9/1	36	191	51
Reading Hospital ★ [8]	Reading, Pa.	W. S. Bertolet	863	51	1,862	$83	1	0	0	7/1	12	150	94
Robert Packer Hospital ★	Sayre, Pa.	S. D. Conklin	1,804	48	4,213	$50	1	0	1	9/1	12	120	73
Roper Hospital ★	Charleston, S. C.	R. Wilson	1,600	72	19,539	$40	0	1	0	7/1	12	250	115
John Gaston Hospital ★	Memphis, Tenn.	J. B. McElroy	2,250	98	21,328	$32	1	1	0	7/1	12	458	94
George W. Hubbard Hospital for Meharry Medical College (col.) ★	Nashville, Tenn.	E. L. Turner	690	67	4,868	$75	1	0	0	7/1	24	108	38
Nashville General Hospital ★	Nashville, Tenn.	O. N. Bryan	1,306	90	10,073	$25	1	2	0	7/1	24	204	83
Vanderbilt University Hospital ★	Nashville, Tenn.	H. J. Morgan	1,425	30	47,890	$35	1	4	0	7/1	24	99	47
Baylor University Hospital ★	Dallas, Tex.	H. M. Winans	2,510	15	3,487	$50	1	1	0	7/1	12	125	38
Parkland Hospital ★	Dallas, Tex.	W. G. Reddick	1,926	95	22,376	$10	4	0	0	1/1&7/1	24	469	115
John Sealy Hospital ★	Galveston, Tex.	C. T. Stone	1,167	55	12,523	$50	1	0	0	7/1	12	169	107
Mary Fletcher Hospital ★	Burlington, Vt.	C. H. Beecher	787	25	1,162	$150	1	0	0	9/1	12	53	25
University of Virginia Hospital ★	Charlottesville	J. C. Flippin	2,054	28	6,395	$50	1	2	0	7/1	36	90	41
Norfolk General Hospital ★	Norfolk, Va.	.....	2,562	26	3,291	$50	1	0	0	7/1	12	164	42
Medical College of Virginia, Hospital Division ★	Richmond	W. B. Porter	1,748	5	9,254	$50	2	3	0	7/1	12	273	93
King County Hospital ★	Seattle	C. E. Watts	1,968	100	30,763	$125	1	0	0	7/1	24	459	158
State of Wisconsin General Hospital ★	Madison	W. S. Middleton	2,640	86	17,740	$25	3	5	0	7/1	36	...	...
St. Joseph's Hospital ★	Milwaukee	R. E. Fitzgerald	1,721	18	.....	$40	1	0	0	6/1	12	215	74
Milwaukee County Hospital ★	Wauwatosa, Wis.	F. D. Murphy	5,587	.....	49,653	$100	3	5	0	7/1	12	620	229

Numerical and other references will be found on page 860.

10. MENTAL DEFICIENCIES

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Michigan Home and Training School	Lapeer, Mich.	F. R. Hanna	3,859	100	.....	$150	4	0	0	1/1	12	76	33

11. MIXED [26]

St. Vincent's Hospital	Birmingham, Ala.	J. D. Sherrill	3,684	1	.....	$75	3	0	0	7/1	12	114	30
Leo N. Levi Memorial Hospital	Hot Springs Nat'l Park, Ark.		1,199	.....	.....	$25	2	0	0	7/1	12	36	10
Paradise Valley Sanitarium and Hosp.	National City, Calif.	C. E. Nelson	1,440	5	.....	$100	2	0	0	7/1	36	55	16
St. Joseph's Hospital	San Francisco	R. H. Parkinson	7,134	10	.....	...	1	4	0	7/1	12+	207	65
St. Mary Hospital	Pueblo, Colo.	J. F. Snedec	2,427	1	.....	$17	1	0	0	7/1	12	158	47
Riverside Hospital	Jacksonville, Fla.	T. Z. Cason	1,230	10	.....	$50	1	0	0	7/1	12	28	7
Eitel Hospital	Minneapolis	W. B. Roberts	5,449	.....	.....	$100	2	2	0	7/1	12+	105	38
Northern Pacific Beneficial Assn. Hosp.	St. Paul	A. W. Ide	2,408	.....	.....	$100	2	0	0	7/1	12	96	21
Elliot Hospital	Manchester, N. H.	G. C. Wilkins	2,587	10	.....	$25	1	1	0	1/1&7/1	12	97	25
Auburn City Hospital	Auburn, N. Y.	W. Sefton	4,628	12	.....	$75	2	0	0	7/1	12	185	29
Glenville Hospital	Cleveland	J. B. Price	3,456	5	.....	$60	2	0	0	7/1	12	150	51
Mansfield General Hospital	Mansfield, O.	F. J. Haringhaus	3,596	.....	.....	$100	1	0	0	6/1	24	176	21
Medical Arts Hospital	Dallas, Tex.	R. E. Wright	4,083	.....	.....	$75	2	0	0	7/1	12	67	7
Chesapeake and Ohio Railway Hospital	Clifton Forge, Va.	J. M. Emmett	2,919	55	.....	$50	3	0	0	7/1	24	110	26
McMillan Hospital	Charleston, W. Va.	W. A. McMillan	2,398	15	.....	$50	2	0	0	7/1	12	73	16
St. Francis Hospital	Charleston, W. Va.	R. Kessell	2,890	25	.....	$50	2	1	0	7/1	24	107	22

12. NEUROLOGY

Los Angeles County Hospital ★	Los Angeles	S. D. Ingham	1,378	100	9,615	$10	2	0	0	7/1	24	343	140
Gallinger Municipal Hospital ★	Washington, D. C.	J. W. Watts	371	99	.....	$30	1	0	0	7/1	12	29	7
University of Chicago Clinics ★	Chicago	P. Bailey	.....	39	2,758	$20	1	1	1	7/1	36	36	31
University Hospitals ★	Iowa City	C. Van Epps	818	87	1,195	$21	1	1	0	7/1	72	18	11
Boston City Hospital ★	Boston	T. J. Putnam	582	88	5,233	None	1	1	7	Varies	12+	28	10
Massachusetts General Hospital ★	Boston	J. B. Ayer	314	43	13,617[e]	$41	1	1	0	8/1	24	17	8
University Hospital ★	Ann Arbor, Mich.	C. Camp	974	82	7,942	$25	1	1	0	7/1	48	25	13
Mayo Foundation	Rochester, Minn.	(See page 860)											
Kings County Hospital ★	Brooklyn	O. C. Perkins	3,732	100	3,811	$15	2	2	0	7/1	24	541	76
Bellevue Hospital ★	New York City	F. Kennedy	297	100	.....	Varies	3[g]	0	0	7/1	24	...	...
Central and Neurological Hospital [15]	New York City	M. Neustaedter	190	100	.....	$100	2	0	0	Varies	12	64	19
Lenox Hill Hospital ★	New York City	T. K. Davis	198	40	.....	$25	1	0	0	7/1	12	2	0
Metropolitan Hospital ★	New York City	S. P. Jewett	248	.....	1,084	$75	1	0	0	7/1	12	38	7
Montefiore Hospital for Chronic Dis. ★	New York City	S. P. Goodhart	284	88	.....	$25	1	4	0	1/1&7/1	24	28	19
Mount Sinai Hospital ★	New York City	.....	.....	57	10,798	$50	1	2	0	1/1&7/1	18	...	...
Neurological Institute of New York	New York City	.....	3,386	12	18,256	$40	14	0	0	Varies	36	133	92
Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases	Philadelphia	C. W. Burr and F. W. Sinkler	233	32	.....	$40	1	0	0	7/1	12	10	0
Temple University Hospital ★ [9]	Philadelphia	T. Fay	579	30	3,308	$40	3	0	3	7/1	36	66	51

13. NEUROSURGERY

Los Angeles County Hospital ★	Los Angeles	C. Rand	1,570	100	572	$10	2	0	0	7/1	24	173	14
University of California Hospital ★	San Francisco	H. C. Naffziger	417	.....	.....	$25	0	1	0	7/1	36	25	21
Presbyterian Hospital ★	Chicago	A. Verbrugghen	124	26	.....	None	1	0	0	7/1	24	13	11
Research and Educational Hospital ★	Chicago	E. Oldberg	297	100	.....	$50	1	0	0	9/1	12	24	23
Boston City Hospital ★	Boston	D. Munro	362	88	.....	None	1	1	0	Varies	12+	65	13
Massachusetts General Hospital ★	Boston	W. J. Mixter	154	43	.....	$41	1	0	0	7/1	24	24	9
Henry Ford Hospital ★	Detroit	A. S. Crawford	248	.....	917	$130	1	0	0	9/1	12	33	15
Mayo Foundation	Rochester, Minn.	(See page 860)											
Albany Hospital ★	Albany, N. Y.	E. H. Campbell, Jr.	274	60	.....	$25	0	1	0	7/1	12	11	7
Jewish Hospital ★	Brooklyn	L. M. Davidoff	302	36	451	$50	1	1	1	1/1	18	30	17
Kings County Hospital ★	Brooklyn	E. J. Browder	.....	100	1,533	$15	1	1	0	1/1&7/1	12	210	124
Neurological Institute of New York	New York City	B. P. Stookey	.....	12	1,247	$40	3	0	0	Varies	36	...	...
New York City Hospital ★	New York City	J. H. Nolan	617	100	1,885	$100	1	0	0	7/1	12	148	32
Strong Memorial and Rochester Municipal Hospitals ★	Rochester, N. Y.	W. P. Van Wagenen	325	62	216	$41	1	0	0	7/1	12	...	...
Hospital of the Univ. of Pennsylvania ★	Philadelphia	F. C. Grant	414	29	173	None	1	0	0	7/1	36	30	30
Temple University Hospital ★	Philadelphia	(See Neurology)											
Medical College of Virginia, Hospital Division ★	Richmond	C. C. Coleman	1,113	5	343	$50	1	1	0	7/1	12	91	45

14. OBSTETRICS

Hospital for Children ★	San Francisco	H. A. Stephenson	1,077	6	2,720	$25	1	1	0	7/1	12	1	1
Garfield Memorial Hospital ★	Washington, D. C.	A. Y. P. Garnett	1,423	.....	1,677	$50	1	1	0	7/1	24	2	0
Sibley Memorial Hospital ★	Washington, D. C.	B. D. Jacobson	2,000	6	.....	$65	1	0	0	7/1	24	3	3
Chicago Maternity Center	Chicago	B. E. Tucker	[d]	.....	13,405	None	1	0	0	1/1	12	3	1
Cook County Hospital	Chicago	D. S. Hillis	8,787	100	14,583	$25	4	0	0	1/1&7/1	12	45	13
Grant Hospital ★	Chicago	.....	1,735	6	3,363	$50	1	0	0	7/1	36	18	5
Provident Hospital (col.) ★	Chicago	P. M. Santos	613	68	3,914	$50	1	0	0	9/1	12	2	2
Ravenswood Hospital ★	Chicago	.....	1,080	2	.....	$75	1	0	0	1/1	12	4	1
Research and Educational Hospital ★	Chicago	F. H. Falls	808	100	.....	$50	3	0	0	7/1	36	6	5
St. Vincent's Infant and Maternity Hospital	Chicago	H. E. Schmitz	269	75	1,477	$50	1	0	0	7/1	36	0	0
Indiana University Hospitals ★	Indianapolis	H. F. Beckman	1,389	83	5,614	$33	1	0	0	7/1	12	12	9
Touro Infirmary ★	New Orleans	W. E. Levy	1,168	35	10,805	$25	2	0	0	7/1	12	2	0
Baltimore City Hospitals ★	Baltimore	L. H. Douglass	2,364	92	27	$50	1	2	0	7/1	12	5	3
Johns Hopkins Hospital ★	Baltimore	N. J. Eastman	2,151	44	17,512	None	1	3	1	7/1&9/1	60	9	7
Provident Hospital and Free Dispensary (col.) ★	Baltimore	L. H. Douglass	368	77	502	$25	1	0	0	10/15	12	2	0
Sinai Hospital ★	Baltimore	M. A. Aaronson	863	38	2,695	$50	1	0	0	7/1	12	4	0
Union Memorial Hospital ★	Baltimore	J. McF. Bergland	525	19	1,718	$40	1	0	0	7/1	24	2	1
University Hospital ★	Baltimore	L. H. Douglass	1,368	49	11,597	$25	1	3	0	7/1	48	11	2
Boston Lying-in Hospital	Boston	F. C. Irving	3,070	10	29,710	$50	1	2	0	1/1&7/1	18	3	2
Massachusetts Memorial Hospitals ★	Boston	E. W. Smith	740	33	4,103	$95	2	0	0	7/1	24	2	0
Providence Hospital ★	Detroit	R. S. Donovan	2,683	10	.....	$100	1	0	0	7/1	12	...	...
Cooper Hospital ★	Camden, N. J.	A. B. Davis	1,717	42	6,828	$83	1	0	0	7/1	36	9	2
Margaret Hague Maternity Hospital	Jersey City, N. J.	S. A. Cosgrove	6,576	50	42,874	$100	7	0	0	Quart.	21	13	4
Anthony N. Brady Maternity Home	Albany, N. Y.	G. E. Lochner	1,388	4	3,845	$75	1	0	0	9/1	36	2	1
Cumberland Hospital ★	Brooklyn	W. C. Meagher	1,344	100	10,214	$100	1	1	0	1/1&7/1	12	1	1
Methodist Hospital ★	Brooklyn	O. P. Humpstone	1,847	9	7,696	$90	1	1	0	7/1	12	6	4
Norwegian Lutheran Deaconesses' Home and Hospital ★	Brooklyn	B. Harris	886	39	3,725	None	1	1	0	7/1	24	...	...
Buffalo General Hospital ★	Buffalo	F. C. Goldsborough	815	8	3,826	$25	0	1	0	7/1	12	2	0
Millard Fillmore Hospital ★	Buffalo	M. G. Potter	1,867	20	1,111	$25	1	0	0	7/1	12	7	1
Fordham Hospital ★	New York City	A. C. Butts	1,547	100	7,470	$15	1	0	0	7/1	12	2	0
French Hospital ★	New York City	F. C. Holden	1,225	11	5,248	$83	1	0	0	7/1	12	2	0

Numerical and other references will be found on page 860.

14. OBSTETRICS—Continued

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Harlem Hospital ★	New York City	F. A. Kassebohm	3,136	98	18,886	$15	1	0	0	7/1	12	8	3
Lenox Hill Hospital ★	New York City	P. H. Williams and R. L. McCready	1,046	40	3,242	$50	1	0	0	7/1	12	0	0
Lincoln Hospital ★ [6]	New York City		1,704	100	.....	$15	2	2	0	1/1&7/1	24	7	2
Morrisania City Hospital ★ [6]	New York City	H. Aranow	1,370	100	4,635	$15	1	1	0	1/1&7/1	12	4	4
New York Infirmary for Women and Children ★	New York City	W. Ragland	954	34	874	$45	1	0	0	7/1	12	1	1
New York Polyclinic Medical School and Hospital ★	New York City		866	12	3,153	$128	1	0	0	7/1	12	5	1
Syracuse Memorial Hospital ★	Syracuse, N. Y.	H. Schoeneck	1,445	46	.....	None	1	0	0	7/1	12	3	2
Cincinnati General Hospital ★	Cincinnati	H. L. Woodward	2,913	87	3,293	[a]	1	2	0	7/1	24	1	0
City Hospital ★	Cleveland	A. H. Bill	1,860	85	.....	$42	1	2	0	7/1	12	...	...
Mount Sinai Hospital ★	Cleveland	M. Garber	844	23	854	$60	1	0	0	7/1	12	...	...
St. Ann's Maternity Hospital	Cleveland	J. R. Thompson	1,683	11	2,228	$50	2	0	0	7/1	12	3	0
St. John's Hospital ★	Cleveland	C. A. O'Connell	1,026	17	.....	$50	1	0	0	7/1	24	1	0
St. Luke's Hospital ★	Cleveland	T. Miller	3,072	18	3,427	$25	1	1	0	7/1	24	7	0
University Hospitals ★	Cleveland	A. H. Bill	2,485	30	25,671	$25	1	4	0	7/1	24	11	6
Miami Valley Hospital ★	Dayton, O.	G. Erbaugh	1,640	29	.....	$75	1	0	0	7/1	12	10	5
George F. Geisinger Memorial Hospital ★	Danville, Pa	R. E. Nicodemus	651	32	2,602	$50	1	0	0	9/1	12	2	1
Jefferson Medical College Hospital ★	Philadelphia	N. W. Vaux	1,357	75	1,070	$50	2	0	0	7/1&10/1	36	...	...
Woman's Hospital ★	Philadelphia		1,047	19	4,229	$25	1	0	0	10/1	12	1	1
Elizabeth Steel Magee Hospital	Pittsburgh	C. E. Ziegler	3,399	35	9,166	$41	4	0	0	9/1	60	29	12
St. Francis Hospital ★	Pittsburgh	J. H. Carroll	1,249	24	1,420	$80	1	0	0	9/1	36	2	0
John Gaston Hospital ★	Memphis, Tenn	W. T. Pride	2,556	98	13,941	$65	1	0	0	7/1	12	31	7
Baylor University Hospital ★	Dallas, Tex	G. R. Hannah	1,393	15	5,862	$50	1	1	0	7/1	12	1	0
Parkland Hospital ★	Dallas, Tex	W. T. Robinson	1,344	95	4,232	$10	2	0	0	1/1&7/1	24	2	0
Medical College of Virginia, Hospital Division ★	Richmond	H. H. Ware	1,413	5	4,015	$50	1	1	0	7/1	12	19	13

15. OBSTETRICS-GYNECOLOGY

Hillman Hospital ★	Birmingham, Ala.	.....	2,799	100	5,523	$40	2	0	0	7/1	12	52	19
Los Angeles County Hospital ★	Los Angeles	.....	12,761	100	10,643	$10	6	0	0	7/1	36	70	37
White Memorial Hospital ★	Los Angeles	R. J. Thompson	1,913	.....	17,004	$78	1	1	0	7/1	36	5	1
Alameda County Hospital ★	Oakland, Calif.	E. N. Ewer and C. A. De Puy	2,237	92	.....	$40	1	0	0	7/1	36	21	17
San Francisco Hospital ★	San Francisco	W. G. Moore and A. V. Pettit	2,493	100	.....	[a]	4	0	0	7/1	12+	...	...
Stanford University Hospitals ★	San Francisco	L. Emge	1,504	1	14,180	$25	1	2	0	7/1	36	11	9
University of California Hospital ★	San Francisco	F. W. Lynch	1,401	.....	11,496	$25	1	3	0	7/1	36	12	9
Santa Clara County Hospital ★	San Jose, Calif.	A. Shufelt	1,047	100	5,908	$75	1	0	0	7/1	12	...	...
New Haven Hospital ★	New Haven, Conn.	A. H. Morse	1,645	39	6,995	[a]	2	0	0	7/1	12+	7	7
Columbia Hospital for Women and Lying-in Asylum	Washington, D. C.	.....	3,933	.....	10,985	None	2	4	0	1/1&7/1	18	18	7
Freedmen's Hospital (col.) ★	Washington, D. C.	J. W. Ross	1,667	85	7,910	$10	1	2	0	10/1	24	26	2
Gallinger Municipal Hospital ★	Washington, D. C.	J. Parks	4,530	99	.....	$30	1	1	0	7/1	12	49	26
Grady Hospital ★	Atlanta, Ga.	.....	5,820	100	48,473	$25	1	2	0	7/1	24	46	17
University Hospital ★	Augusta, Ga.	R. Torpin	2,375	40	5,979	$40	1	1	0	7/1	12	21	12
Chicago Lying-in Hospital and Disp.	Chicago	F. L. Adair	4,042	39	32,223	$33	3	4	0	1/7&7/1	36	2	2
Mercy Hospital-Loyola Univ. Clinics ★	Chicago	H. Schmitz	534	17	.....	$50	1	0	0	7/1	36	4	2
Mount Sinai Hospital ★	Chicago	.....	1,349	.....	2,922	$30	1	0	0	7/1	12+	7	4
Presbyterian Hospital ★	Chicago	N. S. Heaney	1,700	26	.....	$50	3	0	0	1/1&7/1	27	3	2
St. Luke's Hospital ★	Chicago	H. O. Jones	1,715	8	9,509	None	2	0	0	7/1	12	6	4
University of Chicago Clinics ★	Chicago	(See Chicago Lying-in Hospital and Dispensary)											
Indianapolis City Hospital ★	Indianapolis	J. W. Hofmann and H. F. Beckman	2,412	84	19,185	$42	2	0	0	7/1	12	29	17
University Hospitals ★	Iowa City	E. D. Plass	2,702	87	2,835	$21	1	3	0	7/1	72	18	9
University of Kansas Hospitals ★	Kansas City, Kan.	L. A. Calkins	940	58	7,269	$50	1	2	0	7/1	36	10	9
Louisville City Hospital ★	Louisville, Ky.	C. W. Hibbitt	2,398	98	17,850	$14	2	3	0	7/1	36	7	1
Charity Hospital ★	New Orleans	.....	11,726	100	33,956	$25	4	9	0	7/1	36	134	15
Maryland General Hospital ★	Baltimore	E. H. Kloman and K. Boyd	718	28	1,292	$25	1	0	0	7/1	36	16	2
Mercy Hospital ★	Baltimore	A. Samuels and E. P. Smith	1,172	62	1,020	$25	2	0	0	9/1	36	2	1
St. Joseph's Hospital ★	Baltimore	L. Brady and T. Galvin	1,194	40	2,383	$10	1	1	0	7/1	24	6	2
Boston City Hospital ★	Boston	R. M. Green	6,007	88	21,139	[a]	2	6	0	Varies	12+	130	6
Carney Hospital ★	Boston	L. E. Phaneuf	793	6	3,795	None	1	2	0	Quart.	12	9	3
University Hospital ★	Ann Arbor, Mich.	N. Miller	2,488	82	15,981	$25	2	2	0	7/1	48	...	...
City of Detroit Receiving Hospital ★	Detroit	W. F. Seeley	1,238	100	5,447	$83	2	2	0	7/1	48	...	...
Grace Hospital ★	Detroit	M. A. Darling	3,623	30	4,578	$50	1	1	0	9/1	36	5	3
Harper Hospital ★	Detroit	G. Kamperman	1,409	12	.....	$25	1	2	0	7/1	36	10	3
Henry Ford Hospital ★	Detroit	J. P. Pratt	1,574	.....	17,421	$130	1	3	0	9/1	12	37	23
Herman Kiefer Hospital	Detroit	W. F. Seeley	2,182	97	.....	$125	2	0	0	7/1	12	7	4
Woman's Hospital	Detroit	H. M. Nelson and L. E. Daniels	3,705	4	2,978	$75	2	7	1	7/1	12	19	11
Minneapolis General Hospital ★	Minneapolis	J. Simons	3,877	85	.....	$25	1	0	2	1/1&7/1	36	40	21
University Hospitals ★	Minneapolis	J. C. Litzenberg	1,342	69	7,082	$50	0	0	1	1/1&7/1	36	9	8
Mayo Foundation	Rochester, Minn.	(See page 860)											
Ancker Hospital ★	St. Paul	L. W. Barry	2,208	96	10,700	$50	7	0	1	7/1	36	14	10
Jewish Hospital ★	St. Louis	S. A. Weintraub	1,100	29	1,606	$63	1	0	0	7/1	12+	5	0
St. Louis City Hospital ★	St. Louis	T. K. Brown and T. Y. Ayars	2,189	100	.....	$75	1	2	0	7/1	36	4	4
St. Louis Maternity Hospital	St. Louis	.....	2,105	10	.....	$25	1	1	0	7/1	36	4	2
St. Luke's Hospital ★	St. Louis	C. D. O'Keefe	1,002	14	.....	$50	1	0	0	7/1	24	...	...
St. Mary's Group of Hospitals ★	St. Louis	W. H. Vogt	2,226	39	11,713	$25	0	0	6	7/1	34	18	11
Creighton Memorial St. Joseph's Hosp. ★	Omaha	M. E. Grier	1,620	10	3,450	$50	1	0	0	7/1	12+	8	0
University of Nebraska Hospital ★	Omaha	E. C. Sage	916	95	7,509	$50	1	0	0	7/1	12	5	5
Greenpoint Hospital ★	Brooklyn	T. S. Welton	1,942	100	9,313	None	1	0	0	9/1	24	10	3
Jewish Hospital ★	Brooklyn	.....	3,887	36	7,941	$50	2	2	0	1/1&7/1	24	14	2
Kings County Hospital ★	Brooklyn	R. Garlick and C. Gordon	7,743	100	26,472	$15	4	0	0	7/1	24	83	28
Long Island College Hospital ★	Brooklyn	A. C. Beck	2,216	19	14,972	$22	1	2	0	7/1	36	10	2
Edward J. Meyer Memorial Hospital (Buffalo City Hospital) ★	Buffalo	J. E. King and F. C. Goldsborough	1,489	86	8,412	$59	1	2	1	7/1	48	16	10
Queens General Hospital ★	Jamaica, N. Y.	H. P. Mencken	2,730	100	15,554	$100	1	1	0	7/1	24	10	10
Bellevue Hospital ★	New York City	W. E. Studdiford	4,283	100	.....	Varies	11[c]	0	0	7/1	48	...	...
Flower-Fifth Avenue Hospital ★	New York City	H. B. Safford	1,734	9	4,485	$50	1	0	0	7/1	12	1	0
Lying-in Hospital	New York City	H. J. Stander	3,986	17	37,690	None	1	10	0	7/1	60	11	3
Metropolitan Hospital ★	New York City	H. B. Safford	1,787	.....	12,634	$15	2	0	0	7/1	12	9	1
New York City Hospital ★	New York City	J. V. Ricci and R. W. Nutter	1,341	100	5,673	$100	1	0	0	7/1	12	18	4

Numerical and other references will be found on page 860.

15. OBSTETRICS-GYNECOLOGY—Continued

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Sloane Hospital for Women	New York City	B. P. Watson	4,474	28	36,137	$50	2	2	0	7/1	24	...	...
Woman's Hospital	New York City	A. H. Aldridge	3,723	2	31,865	$10	10	0	0	Quart.	24	33	14
Strong Memorial and Rochester Municipal Hospitals *	Rochester, N. Y.	K. M. Wilson	3,272	62	12,270	$41	1	2	0	7/1	24	15	10
Duke Hospital *	Durham, N. C.	B. Carter	1,647	67	9,959	$41	1	2	0	7/1	72	27	16
Mercy Hospital *	Canton, O.	L. E. Leavenworth	1,848	16	.....	$65	1	0	0	7/1	12	13	8
Huron Road Hospital *	East Cleveland, O.	S. C. Runnels	1,843	.....	.....	$40	1	1	0	7/1	12	4	2
Lucas County General Hospital *	Toledo, O.	E. C. Mohr and M. W. Diethelm	1,361	100	2,808	$50	1	0	0	7/1	12	15	1
State University and Crippled Children's Hospitals *	Oklahoma City	G. Penick and W. W. Wells	1,051	95	9,341	$50	1	0	0	7/1	24	18	7
University of Oregon Medical School Hospitals and Clinics *	Portland	R. E. Watkins	1,419	100	9,861	$45	1	2	0	7/1	36	15	8
Hahnemann Hospital *	Philadelphia	E. B. Craig and L. Clemmer	1,768	30	9,851	$50	1	0	0	9/1	24	19	9
Hospital of the Univ. of Pennsylvania *	Philadelphia	C. C. Norris	2,716	29	13,137	None	2	0	2	7/1	36	15	14
Kensington Hospital for Women	Philadelphia	E. A. Schumann	1,688	35	.....	$25	2	0	0	7/1	12	7	2
Pennsylvania Hospital *	Philadelphia	R. A. Kimbrough, Jr. and C. B. Lull	3,795	31	22,126	$20	0	0	3	1/1,5/1,9/1	36	10	4
Philadelphia General Hospital *	Philadelphia	.....	3,326	95	.....	$150	1	0	0	7/1	12	...	...
Roper Hospital *	Charleston, S. C.	A. J. Buist and L. A. Wilson	1,242	72	14,451	$40	0	1	0	7/1	12	15	8
George W. Hubbard Hospital of Meharry Medical College (col.) *	Nashville, Tenn.	R. S. Duke	577	67	2,952	$75	1	0	0	7/1	24	28	6
Nashville General Hospital *	Nashville, Tenn.	W. C. Dixon and M. S. Lewis	1,692	90	9,156	$25	1	1	0	7/1	24	13	5
Vanderbilt University Hospital *	Nashville, Tenn.	L. E. Burch	841	30	10,439	$35	1	4	0	7/1	24	3	1
John Sealy Hospital *	Galveston, Tex.	W. Cooke	1,343	55	3,482	$50	1	0	0	7/1	12	11	5
University of Virginia Hospital *	Charlottesville	T. J. Williams	1,236	28	4,437	$50	1	1	0	7/1	36	20	12
State of Wisconsin General Hospital *	Madison	J. Harris	940	86	5,215	$25	1	2	0	7/1	36	...	...
Milwaukee County Hospital *	Wauwatosa, Wis.	A. H. Lahmann	2,915	.....	15,815	$100	4	2	0	7/1	12	15	8

16. OPHTHALMOLOGY

Los Angeles County Hospital *	Los Angeles	W. A. Boyce and R. Irvine	778	100	14,806	$10	2	0	0	4/1&10/1	24	4	0
Greens' Eye Hospital	San Francisco	A. S. Green	1,920	.....	32,481	$50	1	0	0	7/1	24	3	0
San Francisco Hospital *	San Francisco	W. D. Horner	.....	100	.....	[a]	1	0	0	7/1	12+	...	...
Stanford University Hospitals *	San Francisco	H. Barkan	445	100	13,334	$25	1	1	0	7/1	24	0	0
University of California Hospitals *	San Francisco	H. C. Naffziger	207	.....	14,240	$25	0	2	0	7/1	24	0	0
Colorado General Hospital * [5]	Denver	W. M. Bane	99	62	10,568	$40	1	1	0	7/1	24	1	1
Episcopal Eye, Ear and Throat Hosp.	Washington, D. C.	.....	1,314	8	26,496	$7	4	0	0	3/1,7/1,11/1	16	1	1
Cook County Hospital	Chicago	W. F. Moncrieff	716	100	17,892	$25	5	0	0	1/1&7/1	36	3	0
Illinois Eye and Ear Infirmary	Chicago	H. S. Gradle	2,536	100	112,652	None	6	0	0	1/1&7/1	12	0	0
Michael Reese Hospital *	Chicago	S. J. Meyer	566	44	9,235	...	1	0	0	7/1	24	0	0
Passavant Memorial Hospital *	Chicago	S. R. Gifford	298	6	.....	None	1	0	0	1/1&7/1	12	0	0
Presbyterian Hospital *	Chicago	W. F. Moncrieff	184	26	.....	$25	1	1	0	1/1&7/1	12	1	1
Research and Educational Hospital *	Chicago	H. Beard	276	100	.....	$50	1	0	0	7/1	12	0	0
University of Chicago Clinics *	Chicago	E. V. L. Brown	181	39	9,325	$25	1	3	2	7/1	36	0	0
Indianapolis City Hospital *	Indianapolis	B. J. Larkin	255	84	6,960	$42	1	0	0	7/1	12	1	1
Indiana University Hospitals *	Indianapolis	W. F. Hughes	286	83	2,710	$33	1	0	0	7/1	24	3	2
University Hospitals *	Iowa City	C. S. O'Brien	1,179	87	6,025	$21	1	3	0	7/1	72	2	1
Eye, Ear, Nose and Throat Hospital	New Orleans	W. R. Buffington	.....	15	.....	None	3	0	0	7/1	20	0	0
Johns Hopkins Hospital *	Baltimore	A. C. Woods	1,257	44	20,477	None	1	4	0	7/1&9/1	48	2	1
Massachusetts Eye and Ear Infirmary	Boston	J. H. Waite	3,013	24	53,655	None	7	0	0	Quart.	21	1	0
University Hospital *	Ann Arbor, Mich.	F. B. Fralick	1,081	82	15,514	$25	2	1	0	7/1	36	1	0
University Hospitals *	Minneapolis	F. E. Burch	249	69	6,787	$50	0	0	2	1/1&7/1	36	3	1
Barnes Hospital *	St. Louis	L. T. Post	498	12	19,688	$27	1	1	0	1/1&7/1	12	1	0
St. Louis City Hospital *	St. Louis	J. Green	271	100	.....	$100	1	0	0	7/1	12	0	0
Brooklyn Eye and Ear Hospital	Brooklyn	.....	8,066[f]	4	63,684	None	6	0	0	Quart.	18	2	0
Kings County Hospital *	Brooklyn	W. Moehle	413	100	11,110	$15	1	1	0	1/1&7/1	12	3	0
Long Island College Hospital *	Brooklyn	J. N. Evans	332	19	6,684	$22	1	1	2	7/1	48	...	...
Edward J. Meyer Memorial Hospital (Buffalo City Hospital) *	Buffalo	H. Weed	149	86	6,819	$59	1	2	1	7/1	48	2	1
Bellevue Hospital *	New York City	W. Weeks	661	100	.....	Varies	4[g]	0	0	1/1,5/1,7/1	36	...	...
Central and Neurological Hospital [15]	New York City	J. W. Smith	18	100	.....	$100	1	0	0	Varies	12	1	0
Herman Knapp Memorial Eye Hospital	New York City	A. Knapp	753	15	.....	None	1	1	0	4/1&7/1	18	1	0
Manhattan Eye, Ear and Throat Hosp.	New York City	.....	1,707	20	84,790	None	2	5	0	1/1,5/1,9/1	28	2	0
Metropolitan Hospital *	New York City	A. L. Chambers	122	.....	4,801	$15	1	0	0	7/1	12	...	...
Mount Sinai Hospital *	New York City	.....	.....	57	14,215	$50	1	1	0	7/1	24	...	...
New York Eye and Ear Infirmary	New York City	.....	2,722	31	79,837	None	9	0	0	Quart.	24	3	0
Presbyterian Hospital *	New York City	P. Thygeson and J. H. Dunnington	2,076	28	26,796	$83	6	0	0	1/1&7/1	36	...	...
Strong Memorial and Rochester Municipal Hospitals *	Rochester, N. Y.	J. F. Gipner	251	62	7,408	$41	0	2	0	7/1	24	...	...
Grasslands Hospital *	Valhalla, N. Y.	E. C. Wood	83	90	5,424	$75	1	0	0	7/1	24	0	0
Cincinnati General Hospital *	Cincinnati	D. T. Vail	413	87	11,146	[a]	1	1	0	7/1	24	2	0
City Hospital *	Cleveland	P. W. Moore	173	85	.....	$42	1	0	0	7/1	12	1	0
University Hospitals *	Cleveland	A. B. Bruner	525	30	11,217	$25	1	1	0	7/1	24	2	1
University of Oregon Medical School Hospitals and Clinics *	Portland	F. A. Kiehle	121	100	11,307	$40	1	0	0	7/1	12	1	1
Graduate Hospital of the University of Pennsylvania *	Philadelphia	W. Shoemaker and L. C. Peter	311	45	4,350	None	1	0	0	7/1	12	3	1
Temple University Hospital *	Philadelphia	W. I. Lillie	169	30	5,251	$40	3	0	3	7/1	36	...	...
Wills Hospitals *	Philadelphia	.....	3,760	67	127,249	None	8	0	0	Quart.	24	7	0

17. OPHTHALMOLOGY-OTOLARYNGOLOGY

White Memorial Hospital *	Los Angeles	W. A. Boyce and B. N. Colver	1,296	.....	19,692	$78	3	0	0	7/1	36	6	3
San Diego County General Hospital *	San Diego, Calif.	G. L. Kilgore and C. W. Brown	922	100	3,454	$75	1	0	0	7/1	12	4	1
Hospital for Children *	San Francisco	G. Hosford and R. C. Martin	890	6	3,704	$25	1	1	0	7/1	36	2	0
Gallinger Municipal Hospital *	Washington, D. C.	W. T. Davis and D. Davis	914	99	.....	$30	1	1	0	7/1	12	1	1
Grady Hospital *	Atlanta, Ga.	.....	2,247	100	25,565	$25	2	3	0	7/1	24	16	3
Provident Hospital (col.) *	Chicago	C. L. Forney and L. A. Tancil	366	68	8,288	$50	1	0	0	9/1	12	0	0
Charity Hospital *	New Orleans	.....	5,905	100	44,266	$25	2	4	0	7/1	36	32	13

Numerical and other references will be found on page 860.

17. OPHTHALMOLOGY-OTOLARYNGOLOGY—Continued

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Touro Infirmary *	New Orleans	A. R. Crebbin and H. L. Kearney	1,400	35	8,771	$25	1	0	0	7/1	12	5	3
Baltimore Eye, Ear and Throat Charity Hospital	Baltimore		2,907	54	17,925	None	4	0	0	7/1	24	2	1
University Hospital *	Baltimore	E. A. Looper and A. Voshell	999	49	8,334	$25	0	1	0	7/1	48	12	3
Boston City Hospital *	Boston	J. J. Regan and L. M. Freedman	5,780	88	54,740	None	2	5	0	Varies	12+	25	7
City of Detroit Receiving Hospital *	Detroit	P. Heath and J. M. Robb	1,728	100	6,953	$83	2	0	0	7/1	12	...	...
Grace Hospital *	Detroit	N. Bentley	1,732	30	9,053	$50	1	0	0	9/1	12	1	0
Harper Hospital *	Detroit	P. Heath and J. M. Robb	2,707	12	.....	$25	1	3	0	7/1	36	11	6
Henry Ford Hospital *	Detroit	E. L. Whitney and J. L. Dill	1,619	.....	30,694	$130	2	3	0	9/1	12	12	5
Shurly Hospital	Detroit	B. R. Shurly	1,099	75	16,753	$25	2	0	0	7/1	12	74	2
Eloise Hospital (Dr. William J. Seymour Hospital) *	Eloise, Mich	R. Beattie	1,723	96	5,810	$83	1	1	0	7/1	12	2	2
Minneapolis General Hospital *	Minneapolis	M. C. Pfunder	1,482	85	.....	$25	0	0	2	1/1&7/1	36	4	1
Mayo Foundation	Rochester, Minn	(See page 860)											
Ancker Hospital *	St. Paul	R. O. Leavenworth	1,270	96	12,118	$50	2	0	0	7/1	24	4	2
Children's Mercy Hospital	Kansas City, Mo	C. K. Shafstall and N. E. Lacy	800	100	5,896	$25	1	0	0	7/1	24	5	4
Kansas City General Hospital *	Kansas City, Mo	M. B. Simpson and A. N. Le Moine	745	100	8,433	$50	1	0	0	7/1	12	9	8
St. Mary's Group of Hospitals *	St. Louis	W. H. Luedde and W. E. Sauer	1,205	39	14,658	$25	0	0	3	7/1	34	3	2
Jersey City Hospital *	Jersey City, N. J.		2,396	92	12,685	$100	1	2	0	7/1	24	3	0
Newark Eye and Ear Infirmary	Newark, N. J.	W. P. Eagleton	2,411	30	32,406	None	3	0	0	2/1, 6/1, 10/1	16	31	12
Queens General Hospital *	Jamaica, N. Y.	W. G. Frey and M. S. Bender	2,716	100	17,187	$15	1	2	0	7/1	24	10	7
Harlem Eye and Ear Hospital	New York City	C. B. Meding and A. Laizlo	1,739	78	33,896	None	3	0	0	1/1&7/1	24	0	0
New York Polyclinic Medical School and Hospital *	New York City		2,338	12	16,479	None	4	0	0	1/1&7/1	24	1	0
New York Post-Graduate Medical School and Hospital *	New York City	M. Cohen and A. Nilsen	2,309	17	32,458	None	1	5	0	5/1&11/1	36	5	0
St. Luke's Hospital *	New York City	W. G. Frey and W. C. Bowers	1,059	46	13,964	None	3	0	0	3/1&9/1	24	4	1
Rochester General Hospital *	Rochester, N. Y.	L. W. Jones and C. S. Nash	840	615	6,717	$50	1	0	0	7/1	24	0	0
Duke Hospital *	Durham, N. C.	W. B. Anderson and W. W. Eagle	1,023	67	6,125	$41	1	2	0	7/1	36	5	3
Starling-Loving University Hospital *	Columbus, O.	A. D. Frost and H. G. Beatty	545	50	4,348	$25	0	1	0	7/1	12	6	5
State University and Crippled Children's Hospitals *	Oklahoma City	L. Westfall and T. G. Walls	633	95	5,575	$50	1	0	0	7/1	12	16	7
Eye and Ear Hospital	Pittsburgh	W. E. Carson and J. H. McCready	3,880	18	20,245	None	4	0	0	7/1	36	18	12
Memphis Eye, Ear, Nose and Throat Hospital	Memphis, Tenn	E. C. Ellett	1,580	10	18,242	None	4	0	0	1/1&7/1	24	2	1
Parkland Hospital *	Dallas, Tex		681	95	3,287	$10	1	0	0	7/1	12	4	1
University of Virginia Hospital *	Charlottesville	E. W. Burton and F. D. Woodward	1,231	28	8,066	$25	1	2	0	7/1	36	17	1
Medical College of Virginia, Hosp. Div.*	Richmond	R. H. Courtney and K. S. Blackwell	1,257	5	10,278	$50	2	2	0	7/1	24	3	1
King County Hospital *	Seattle	A. T. Wanamaker	399	100	9,275	$75	1	0	0	7/1	24	3	1
State of Wisconsin General Hospital *	Madison	F. A. Davis and W. N. Nesbit	973	86	3,547	$25	1	2	0	7/1	36	...	...
Milwaukee County Hospital *	Wauwatosa, Wis	E. A. Waldeck	2,038	.....	26,758	$100	1	1	0	7/1	12	...	...

18. ORTHOPEDIC SURGERY

Children's Hospital	Los Angeles	J. C. Wilson	359	41	4,817	$90	1	0	0	7/1	12	3	2
Los Angeles County Hospital *	Los Angeles	J. C. Wilson	4,790	100	31,835	$10	4	0	0	4/1&10/1	24	183	12
Orthopaedic Hospital	Los Angeles	C. L. Lowman	2,252	56	18,407	$50	4	0	1	7/1	36	6	2
White Memorial Hospital *	Los Angeles	G. M. Taylor	352	.....	4,950	$78	1	0	0	7/1	36	3	1
Hospital for Children *	San Francisco	L. Abbott	297	6	1,566	$25	2	1	0	7/1	36	4	0
San Francisco Hospital *	San Francisco	F. C. Bost	.....	100	.....	[a]	0	0	1	7/1	12+	...	...
Shriners Hospital for Crippled Children	San Francisco	S. L. Haas	292	100	3,096	$60	1	0	0	7/1	12	0	0
University of California Hospital *	San Francisco	H. C. Naffziger	214	.....	7,527	$25	0	2	0	7/1	36	2	2
Children's Hospital	Denver	D. M. McKenna	776	15	1,728	$50	1	1	0	7/1	24	5	3
New Haven Hospital *	New Haven, Conn	A. Bassin	477	39	5,418	[a]	1	0	0	7/1	12+	11	1
Children's Memorial Hospital	Chicago	F. A. Chandler	166	66	3,448	$50	1	0	0	1/1&7/1	12+	1	1
Cook County Hospital	Chicago	E. J. Berkheiser	932	100	17,794	$25	2	0	0	1/1&7/1	36	23	11
Research and Educational Hospital *	Chicago	H. B. Thomas	397	100	.....	$50	3	0	0	7/1	36	...	...
Shriners Hospital for Crippled Children	Chicago	B. H. Moore	289	100	2,188	$65	1	0	0	7/1	12	2	0
University of Chicago Clinics *	Chicago	E. L. Compere	654	39	5,526	$25	1	4	1	7/1	36	5	4
Indiana University Hospitals *	Indianapolis	L. A. Ensminger	1,118	83	10,610	$33	1	2	0	7/1	36	11	5
University Hospitals *	Iowa City	A. Steindler	3,839	87	7,485	$21	1	7	0	7/1	72	3	2
Kosair Crippled Children Hospital	Louisville, Ky	W. B. Owen	568	100	.....	$75	1	1	0	7/1	24	2	0
Charity Hospital *	New Orleans		1,458	100	10,276	$25	1	3	0	7/1	36	10	1
Shriners Hospital for Crippled Children	Shreveport, La	H. A. Durham	211	100	.....	$125	1	0	0	Varies	12+	0	0
James Lawrence Kernan Hospital	Baltimore	A. F. Voshell	240	94	5,680	$92	1	0	0	7/1	12	2	1
Johns Hopkins Hospital *	Baltimore	G. S. Bennett	552	44	6,167	None	1	1	0	7/1&9/1	48	4	1
Boston City Hospital *	Boston	O. J. Hermann	1,367	88	2,541	[a]	1	1	0	Varies	12+	53	1
Children's Hospital	Boston	F. R. Ober	404	2	19,644	$56	1	0	0	9/1	12	0	0
Massachusetts General Hospital *	Boston	M. N. Smith-Petersen	442	43	15,532	$41	1	0	0	9/1	24	4	0
Shriners Hospital for Crippled Children	Springfield, Mass	R. N. Hatt	354	100	1,793	$25	1	0	0	7/1	12	3	0
University Hospital *	Ann Arbor, Mich	C. Badgley	3,647	82	16,831	$25	2	5	0	7/1	36	13	6
Henry Ford Hospital *	Detroit	C. L. Mitchell	684	.....	12,001	$130	1	4	0	9/1	12	8	2
Mayo Foundation	Rochester, Minn	(See page 860)											
Gillette State Hospital for Crippled Children	St. Paul	C. C. Chatterton	863	100	6,634	$100	1	0	0	7/1	12	10	7
State Hospital for Crippled Children	Columbia, Mo	W. J. Stewart	674	1	1,209	$50	1	0	0	9/1	12	7	2
Kansas City General Hospital *	Kansas City, Mo	F. D. Dickson	2,021	100	6,386	$50	1	0	0	7/1	12	67	55
St. Luke's Hospital *	Kansas City, Mo	F. D. Dickson and R. L. Diveley	700	10	4,500	$50	1	0	0	7/1	12	6	4
St. Mary's Group of Hospitals *	St. Louis	A. O'Reilly	166	39	3,772	$25	0	0	2	7/1	34	2	1

Numerical and other references will be found on page 860.

18. ORTHOPEDIC SURGERY—Continued

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Shriners Hospital for Crippled Children	St. Louis	C. H. Crego	570	100	1,564	$135	1	0	0	7/1	24	0	0
Jersey City Hospital ★	Jersey City, N. J.	.....	1,044	92	7,398	$100	1	1	0	1/1	12	48	4
New Jersey Orthopaedic Hospital and Dispensary	Orange	H. W. Smith	427	39	23,249	$50	1	1	0	Varies	18	1	0
Kings County Hospital ★	Brooklyn	J. B. L'Episcopo	1,184	100	13,067	$50	1	1	0	7/1	36	14	3
Long Island College Hospital ★	Brooklyn	J. C. Rushmore	424	19	13,414	$22	1	1	0	7/1	36	5	1
Buffalo General Hospital ★	Buffalo	W. W. Plummer	578	8	1,487	$25	0	1	0	7/1	12	9	4
Bellevue Hospital ★	New York City	A. Krida	700	100	.....	$15	4[g]	0	0	1/1&7/1	24	...	...
Hospital for Joint Diseases ★	New York City	.....	3,042	44	43,557	$25	9	0	0	1/1	48	20	7
Hospital for Ruptured and Crippled	New York City	P. D. Wilson	1,590	.....	.....	$20	2	6	3	1/1&7/1	24	7	3
Metropolitan Hospital ★	New York City	A. H. Bingham	739	.....	2,790	$75	1	0	0	7/1	12	39	1
Mount Sinai Hospital ★	New York City	.....	.....	57	15,206	$50	1	0	0	7/1	12	...	...
New York Orthopaedic Dispensary and Hospital	New York City	B. P. Farrell	1,529	5	93,172	$33	8	0	9	Quart.	60	1	0
Strong Memorial and Rochester Municipal Hospitals ★	Rochester, N. Y.	R. P. Schwartz	657	62	7,363	$41	0	2	0	7/1	24	...	...
Sea View Hospital	Staten Island, N. Y.	D. Bosworth	225	.....	.....	$100	2	2	0	1/1&7/1	12	31	15
New York State Reconstruction Home	West Haverstraw, N.Y.	C. Wallace	310	.....	120	$100	1	1	0	3/1&9/1	18	2	0
Duke Hospital ★	Durham, N. C.	D. Hart	501	67	4,206	$41	1	1	0	7/1	48	2	0
Cincinnati General Hospital ★	Cincinnati	J. Freiberg	405	87	3,559	[a]	1	1	0	7/1	24	14	6
Mount Sinai Hospital ★ [12]	Cleveland	R. S. Reich	925	23	6,768	$60	1	0	0	7/1	12	9	7
University Hospitals ★	Cleveland	M. Harbin	498	30	6,444	$25	1	0	0	7/1	24	3	2
Hospital for Bone and Joint Diseases and McBride Clinic	Oklahoma City	E. D. McBride	389	.....	10,300	$50	1	2	0	1/1	24	2	0
St. Anthony Hospital ★	Oklahoma City	N. R. Drummond	673	9	.....	$50	1	0	0	7/1	12	17	5
State University and Crippled Children's Hospitals ★	Oklahoma City	P. C. Colonna	1,317	95	7,208	$50	3	0	1	7/1	36	15	2
Mercy Hospital and Surgical Institute	Tulsa, Okla.	W. Sisler	769	25	6,460	$50	2	0	0	7/1	12	10	0
Emanuel Hospital ★	Portland, Ore.	R. B. Dillehunt	894	10	.....	$50	1	0	0	6/25	12	18	6
Shriners Hospital for Crippled Children	Portland, Ore.	R. B. Dillehunt	280	100	2,251	$25	1	0	0	7/1	12	0	0
State Hospital for Crippled Children	Elizabethtown, Pa.	J. R. Martin	339	100	1,078	$100	2	0	0	7/1	24	4	0
Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases	Philadelphia	A. B. Gill and D. P. Willard	299	32	.....	$40	1	0	0	7/1	12	1	0
Temple University Hospital ★	Philadelphia	J. R. Moore	531	30	5,120	$40	2	0	2	7/1	36	...	...
Robert Packer Hospital ★	Sayre, Pa.	T. Outland	510	48	2,936	$66	1	0	1	9/1	24	2	1
Willis C. Campbell Clinic	Memphis, Tenn.	W. C. Campbell	995	.....	.....	$50	5	0	0	1/1&7/1	36	16	0
Parkland Hospital ★	Dallas, Tex.	R. Jackson	434	95	4,940	$10	1	0	0	7/1	12	12	1
Texas Scottish Rite Hospital for Crippled Children	Dallas, Tex.	W. B. Carrell	821	100	3,000	$75	1	0	0	1/1	24	2	0
University of Virginia Hospital ★	Charlottesville	R. V. Funsten	505	28	3,553	$33	1	1	1	7/1	36	9	1
Children's Orthopedic Hospital	Seattle	H. J. Wyckoff	398	.....	4,619	$100	1	0	0	7/1	12	3	3
State of Wisconsin General Hospital ★	Madison	R. Burns	3,192	86	3,848	$25	3	2	0	7/1	36	...	...
Milwaukee County Hospital ★	Wauwatosa, Wis.	J. W. Powers	831	.....	10,608	$100	1	1	0	7/1	12	60	16

19. OTOLARYNGOLOGY

Children's Hospital	Los Angeles	J. M. Brown	1,349	41	4,273	$90	1	0	0	7/1	12	3	3
Los Angeles County Hospital ★	Los Angeles	J. M. Brown and F. E. Detling	3,089	100	18,170	$10	3	0	0	4/1&10/1	24	47	18
San Francisco Hospital ★	San Francisco	L. F. Morrison	581	100	.....	[a]	2	0	0	7/1	12+	...	...
Stanford University Hospitals ★	San Francisco	E. Sewall	1,212	1	12,078	$25	1	1	0	7/1	36	5	1
University of California Hospital ★	San Francisco	H. C. Naffziger	797	.....	7,627	$25	0	1	0	7/1	24	0	0
New Haven Hospital ★	New Haven, Conn.	N. Canfield	907	39	5,175	[a]	1	1	0	7/1	12+	3	1
Episcopal Eye, Ear and Throat Hosp.	Washington, D. C.	.....	4,708	8	17,288	$7	3	0	0	3/1,7/1,11/1	12	8	1
Cook County Hospital	Chicago	S. Pearlman	6,844	100	21,439	$25	6	0	0	1/1&7/1	36	69	26
Illinois Eye and Ear Infirmary	Chicago	H. S. Gradle	2,684	100	64,520	None	3	0	0	1/1&7/1	12	3	2
Passavant Memorial Hospital ★	Chicago	J. G. Wilson	304	6	.....	None	1	0	0	1/1&7/1	12	5	1
Presbyterian Hospital ★	Chicago	D. B. Hayden	1,563	26	.....	$50	1	1	0	1/1&7/1	12	2	2
Research and Educational Hospital ★	Chicago	F. L. Lederer	1,032	100	.....	$50	1	0	0	7/1	12	5	4
University of Chicago Clinics ★	Chicago	J. R. Lindsay	840	39	12,131	None	1	2	1	7/1	24	1	1
Indianapolis City Hospital ★	Indianapolis	R. E. Chappel	1,241	84	7,494	$42	1	0	0	7/1	12	3	1
Indiana University Hospitals ★	Indianapolis	C. H. McCaskey	731	83	2,453	$33	1	1	0	7/1	24	7	3
University Hospitals ★	Iowa City	D. M. Lierle	2,273	87	6,517	$21	1	5	0	7/1	72	13	7
Eye, Ear, Nose and Throat Hospital	New Orleans	J. R. Hume and F. E. Lejeune	.....	15	.....	None	6	0	0	7/1	24	16	3
Johns Hopkins Hospital ★	Baltimore	S. J. Crowe	1,205	44	3,508	None	1	1	0	7/1&9/1	48	2	1
Beth Israel Hospital ★	Boston	L. Arkin and L. M. Freedman	1,135	21	9,029	None	1	0	0	7/1	12	...	...
Massachusetts Eye and Ear Infirmary	Boston	H. P. Mosher	4,454	24	46,810	None	7	0	0	Quart.	21	19	6
Memorial Hospital ★	Worcester, Mass.	G. Berry	1,449	14	3,445	$41	1	0	0	7/1	12	4	3
University Hospital ★	Ann Arbor, Mich.	A. C. Furstenberg	1,668	82	15,306	$25	1	1	0	7/1	48	29	18
University Hospitals ★	Minneapolis	H. Newhart	354	69	6,811	$50	0	0	2	1/1&7/1	36	4	3
Barnes Hospital ★	St. Louis	L. W. Dean, Sr.	1,393	12	15,388	$20	1	0	0	7/1	12	...	...
Jewish Hospital ★	St. Louis	S. B. Westlake	381	29	2,034	$63	1	0	0	7/1	12+	4	2
St. Louis City Hospital ★	St. Louis	A. C. Stutsman	1,694	100	.....	$100	1	0	0	7/1	12	32	19
Newark City Hospital ★	Newark, N. J.	W. P. Eagleton	2,749	100	.....	$20	1	0	0	10/1	12	58	39
Brooklyn Eye and Ear Hospital	Brooklyn	.....	8,066[f]	4	66,191	None	8	0	0	Varies	16	19	6
Jewish Hospital ★	Brooklyn	E. L. Berger	627	36	7,965	None	1	0	0	7/1	12	5	0
Kings County Hospital ★	Brooklyn	M. C. Myerson	2,966	100	16,152	$15	1	2	0	7/1	36	59	18
Long Island College Hospital ★	Brooklyn	R. L. Moorhead	861	19	6,298	$22	1	1	0	7/1	24	2	0
Buffalo General Hospital ★	Buffalo	J. F. Fairbairn	1,082	8	4,413	$25	1	2	0	7/1	12	4	1
Edward J. Meyer Memorial Hospital (Buffalo City Hospital) ★	Buffalo	J. F. Fairbairn	296	86	6,488	$59	1	2	1	7/1	48	4	0
Bellevue Hospital ★	New York City	.....	.....	100	.....	Varies	6[g]	0	0	3/1,7/1,11/1	24	...	...
Flower-Fifth Avenue Hospital ★	New York City	J. A. W. Hetrick	1,027	9	8,551	$50	1	0	0	7/1	24	0	0
Manhattan Eye, Ear and Throat Hosp.	New York City	.....	14,548	20	86,190	None	2	6	0	Quart.	24	20	3
Metropolitan Hospital ★	New York City	J. A. W. Hetrick	1,148	.....	6,346	$100	1	0	0	7/1	12	...	...
Mount Sinai Hospital ★	New York City	.....	.....	57	19,890	$50	1	1	0	7/1	24	...	...
New York City Hospital ★	New York City	O. C. Risch	1,230	100	4,249	$100	1	0	0	7/1	12	8	3
New York Eye and Ear Infirmary	New York City	.....	3,014	31	49,659	None	8	0	0	Quart.	24	11	3
Roosevelt Hospital ★	New York City	C. N. Harper	853	15	.....	None	1	0	0	1/1&7/1	12	...	...
Strong Memorial and Rochester Municipal Hospitals ★	Rochester, N. Y.	C. A. Heatly	1,298	62	6,436	$41	0	2	0	7/1	24	...	...
Sea View Hospital	Staten Island, N. Y.	M. C. Myerson	2,651	.....	.....	$100	2	0	0	1/1&7/1	12	1	0
Grasslands Hospital ★	Valhalla, N. Y.	M. T. Smith	588	90	3,505	$75	1	0	0	7/1	24	4	4
Cincinnati General Hospital ★	Cincinnati	S. Iglauer	1,491	87	8,367	[a]	1	1	0	7/1	24	8	4
City Hospital ★	Cleveland	C. W. Engler	811	85	.....	$42	1	1	0	7/1	18	2	0
St. Luke's Hospital ★	Cleveland	C. E. Pitkin	1,739	18	7,090	$25	1	1	0	7/1	24	7	4
University Hospitals ★	Cleveland	W. B. Chamberlain	2,255	30	10,986	$25	1	2	0	Varies	24	4	2

Numerical and other references will be found on page 860.

19. OTOLARYNGOLOGY—Continued

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
University of Oregon Medical School Hospitals and Clinics *	Portland, Ore.	R. A. Fenton	306	100	10,458	$40	1	0	0	7/1	12	6	3
Geo. F. Geisinger Memorial Hospital *	Danville, Pa	F. W. Davison	725	32	4,720	$50	1	0	0	9/1	12	7	1
Graduate Hospital of the University of Pennsylvania *	Philadelphia	G. B. Wood and R. Butler	2,432	45	7,304	None	2	0	0	7/1	12	16	7
Jefferson Medical College Hospital *	Philadelphia	L. H. Clerf and H. Williams	1,857	75	3,008	None	1	0	0	7/1	36	29	16
Temple University Hospital *	Philadelphia	M. S. Ersner and R. F. Ridpath	1,621	30	6,882	$40	1	0	1	7/1	36	...	...
Gill Memorial Eye, Ear and Throat Hospital	Roanoke, Va.	E. G. Gill	702	.....	11,374	$50	2	0	0	7/1	24	0	0

20. PATHOLOGY

		Chief of Service	Inpatients Treated [1]	Surgical Pathology: Gross Examinations	Surgical Pathology: Microscopic Examinations	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Hillman Hospital *	Birmingham, Ala.	G. S. Graham	11,340	1,316	1,352	$40	1	0	0	7/1	12	871	248
Children's Hospital	Los Angeles	C. M. Hyland	4,311	281	272	$90	1	0	0	7/1	12	162	143
Los Angeles County Hospital *	Los Angeles	N. G. Evans	51,505	8,636	.....	$10	4	0	0	7/1	24	3,844	2,075
St. Vincent's Hospital *	Los Angeles	J. W. Budd	6,498	3,000	19,521	$60	1	0	0	7/1	36	197	83
Alameda County Hospital *	Oakland, Calif.	G. Moore	12,425	4,981	3,083	$40	1	1	0	7/1	36	724	417
Collis P. and Howard Huntington Memorial Hospital *	Pasadena, Calif.	A. G. Foord	5,385	368	1,275	$100	1	0	0	7/1	12	179	103
Mount Zion Hospital *	San Francisco	G. Y. Rusk	3,969	924	428	$50	2	0	0	6/15	12	156	91
San Francisco Hospital *	San Francisco	G. Y. Rusk and W. Dock	14,494	.....	.....	[a]	2	0	1	7/1	12+	967	520
Stanford University Hospitals *	San Francisco	W. Dock	9,162	1,727	1,707	$25	0	1	0	7/1	12	212	120
University of California Hospitals *	San Francisco	C. L. Connor	7,363	2,779	2,779	$25	1	0	0	7/1	36	223	167
Denver General Hospital *	Denver	E. T. Thorsness	7,687	68,061	3,230	$50	1	0	0	7/1	12	889	464
New Haven Hospital *	New Haven, Conn.	M. D. Winternitz	9,358	2,965	2,965	[a]	1	3	0	7/1	12+	450	270
Children's Hospital	Washington, D. C.	J. W. Lindsay	6,589	170	40	$50	1	0	0	7/1	12	208	141
Gallinger Municipal Hospital *	Washington, D. C.	H. H. Leffler	14,598	1,371	1,371	$30	1	0	0	7/1	12	1,121	457
Garfield Memorial Hospital *	Washington, D. C.	J. W. Lindsay	7,055	1,475	1,293	$50	1	0	0	7/1	24	241	116
Grady Hospital *	Atlanta, Ga.	W. B. Matthews	22,078	2,211	2,180	$25	1	0	0	7/1	24	1,302	450
Children's Memorial Hospital	Chicago	W. G. Hibbs	4,110	185	176	$50	1	0	0	1/1&7/1	24	153	123
Cook County Hospital	Chicago	W. Schiller	75,223	6,983	4,342	$25	3	0	0	1/1&7/1	12	6,155	1,327
Michael Reese Hospital *	Chicago	O. Saphir	6,943	4,000	4,000	....	2	2	0	1/1&7/1	36	650	370
Mount Sinai Hospital *	Chicago	I. Davidsohn	6,395	2,564	1,716	$50	1	1	0	7/1	12+	192	85
Presbyterian Hospital *	Chicago	C. Apfelbach	10,614	1,956	1,956	$50	2	0	0	1/1&7/1	36	276	182
Provident Hospital (col.) *	Chicago	J. H. Lewis	3,804	773	773	$50	1	0	0	9/1	12	151	70
Research and Educational Hospital *	Chicago	S. A. Levinson	5,911	4,208	8,588	$50	1	0	0	7/1	12	173	148
St. Luke's Hospital *	Chicago	E. F. Hirsch	10,331	3,857	3,667	$75	0	0	1	1/1&7/1	24	240	160
University of Chicago Clinics *	Chicago	H. G. Wells	10,622	1,559	3,237	$25	1	0	0	7/1	12	251	203
Evanston Hospital *	Evanston, Ill.	E. L. Benjamin	8,246	1,798	1,170	$83	1	0	0	10/1	12	155	126
Methodist Hospital of Central Illinois * and St. Francis Hospital *	Peoria, Ill.	M. G. Bohrod	18,563	4,100	3,500	$75	1	0	0	7/1	36	.....	260
Indianapolis City Hospital *	Indianapolis	H. C. Thornton	9,829	2,178	2,136	$42	1	1	0	7/1	12	790	430
Indiana University Hospitals *	Indianapolis	F. Forry	9,554	2,429	2,429	$33	3	0	0	7/1	36	367	211
Methodist Episcopal Hospital *	Indianapolis	H. M. Banks	22,363	4,252	4,252	$50	1	2	0	7/1	36	527	149
Ball Memorial Hospital *	Muncie, Ind.	L. G. Montgomery	4,919	.....	1,718	$75	1	0	0	7/1	12	297	123
University Hospitals *	Iowa City	H. P. Smith	20,206	3,310	3,310	$21	1	0	0	7/1	72	515	297
University of Kansas Hospitals *	Kansas City, Kan.	H. R. Wahl	5,719	4,125	3,525	$50	1	4	0	7/1	36	245	191
Louisville City Hospital *	Louisville, Ky.	A. J. Miller	10,833	.....	1,761	$14	0	3	0	7/1	24	887	272
Charity Hospital *	New Orleans	J. R. D'Aunoy	55,859	19,453	19,391	$25	0	1	0	7/1	36	2,543	1,077
Touro Infirmary *	New Orleans	J. Langford	11,286	.....	.....	$25	1	0	0	7/1	12	364	177
Baltimore City Hospitals *	Baltimore	F. B. Kindell	8,942	993	993	$50	1	0	0	7/1	12	1,370	652
Johns Hopkins Hospital *	Baltimore	W. G. MacCallum	17,644	1,600	1,600	None	1	1	0	9/1	36	665	506
Boston City Hospital *	Boston	F. Parker, Jr.	42,750	4,119	4,119	None	3	0	0	7/1	48	1,973	645
Boston Lying-in Hospital and Free Hospital for Women [5]	Brookline, Mass.	A. T. Hertig	6,478	3,970	3,970	$50	2	0	0	1/1&7/1	12	77	47
Children's Hospital	Boston	S. B. Wolbach	5,275	716	716	$56	1	0	0	7/1	12	125	84
Massachusetts General Hospital *	Boston	T. B. Mallory	13,016	6,271	6,271	$41	1	0	0	1/1&7/1	12	570	295
Massachusetts Memorial Hospitals *	Boston	C. F. Branch	7,569	1,661	1,461	$100	1	0	0	7/1	36	192	139
New England Deaconess Hospital [13]	Boston	S. Warren	.....	.....	.....	$25	7	0	0	7/1	12	.....	.....
Peter Bent Brigham Hospital *	Boston	S. B. Wolbach	4,584	3,732	3,732	$100	1	0	0	7/1	24	301	181
Worcester State Hospital	Worcester, Mass.	W. Freeman	761	68	68	None	0	2	0	1/1&7/1	12	215	124
University Hospital *	Ann Arbor, Mich.	C. V. Weller	23,665	7,623	7,623	$100	0	1	0	7/1	12	783	452
City of Detroit Receiving Hospital *	Detroit	O. A. Brines	20,773	2,729	.....	$50	1	1	2	7/15	24	648	287
Henry Ford Hospital *	Detroit	F. W. Hartman	11,598	3,671	3,671	$150	1	0	0	9/1	36	350	184
Eloise Hospital (Dr. Wm. J. Seymour Hospital) *	Eloise, Mich.	S. E. Gould	14,039	1,163	1,163	$83	1	1	0	7/1	..	999	482
Hurley Hospital *	Flint, Mich.	G. R. Backus	7,929	2,884	.....	$41	0	1	0	7/1	12	464	165
Mayo Foundation	Rochester, Minn.	(See page 860)											
Ancker Hospital *	St. Paul	J. F. Noble	9,750	1,418	1,208	$50	1	0	0	7/1	12	730	597
Kansas City General Hospital *	Kansas City, Mo.	R. E. Duncan	11,242	2,200	1,600	$50	1	0	0	7/1	12	865	703
St. Joseph Hospital *	Kansas City, Mo.	B. W. Kerr	5,327	2,440	1,840	$50	1	0	0	7/1	36	248	174
St. Luke's Hospital *	Kansas City, Mo.	F. C. Helwig	4,709	.....	.....	$50	1	0	0	7/1	12	149	113
Barnes Hospital *	St. Louis		10,167	2,288	2,288	None	1	0	0	7/1	12	327	187
St. Louis City Hospital *	St. Louis	S. H. Gray	18,954	3,000	2,500	$50	1	1	0	7/1	24	1,206	671
Creighton Memorial St. Joseph's Hosp. *	Omaha	B. C. Russum	7,656	7,635	6,207	$50	1	0	0	7/1	12+	321	105
University of Nebraska Hospital *	Omaha	J. P. Tollman	3,542	1,157	1,157	$50	1	0	0	7/1	12	133	112
Mary Hitchcock Memorial Hospital *	Hanover, N. H.	R. E. Miller	4,447	559	427	$83	1	0	0	7/1	12	117	99
Mountainside Hospital *	Montclair, N. J.	M. J. Fein	6,287	1,769	1,769	$100	1	0	0	1/1	12+	219	62
Newark Beth Israel Hospital *	Newark, N. J.	W. Antopol	11,328	3,211	3,211	$25	1	1	0	10/1	24	410	125
Albany Hospital *	Albany, N. Y.	A. W. Wright	12,068	5,475	5,475	$25	0	5	0	7/1	12	401	289
Bender Hygienic Laboratory	Albany, N. Y.	J. J. Clemmer	[h]	5,504	5,504	$75	1	0	0	7/1	48	.....	181
Binghamton City Hospital *	Binghamton, N. Y.	V. W. Bergstrom	8,482	1,817	1,817	$50	1	0	0	7/1	12	376	77
Cumberland Hospital *	Brooklyn	S. H. Polayes	8,178	1,779	.....	$15	1	0	0	7/1	12	294	167
Jewish Hospital *	Brooklyn	M. Lederer	12,294	1,400	.....	$25	1	0	0	1/1	12	482	189
Kings County Hospital *	Brooklyn	W. W. Hala	58,288	7,995	.....	$50	1	4	0	7/1	24	5,614	788
Long Island College Hospital *	Brooklyn	J. Oliver	7,809	2,541	2,541	$22	1	0	0	7/1	12	301	95

Numerical and other references will be found on page 860.

20. PATHOLOGY—Continued

		Chief of Service	Inpatients Treated [1]	Surgical Pathology: Gross Examinations	Surgical Pathology: Microscopic Examinations	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [2]	Autopsies
St. John's Hospital *	Brooklyn	L. A. Thunig	4,781	944	.....	$25	1	0	0	7/1	12	239	109
Buffalo General Hospital *	Buffalo	K. Terplan	10,568	3,334	3,326	$25	1	2	0	7/1	12	524	271
Edward J. Meyer Memorial Hospital (Buffalo City Hospital) *	Buffalo	W. F. Jacobs	10,543	2,307	2,307	$50	1	2	1	7/1	48	1,100	278
Millard Fillmore Hospital *	Buffalo	N. Elton	6,712	469	.....	$25	1	0	0	7/1	12	253	106
Meadowbrook Hospital *	Hempstead, N. Y.	T. J. Curphey	5,913	1,253	1,225	$50	2	0	0	7/1	24	400	208
Mary Immaculate Hospital *	Jamaica, N. Y.	E. R. Erskine	8,366	2,591	1,869	None	1	0	0	7/1	12	304	88
Queens General Hospital *	Jamaica, N. Y.	A. Angrist	13,368	2,992	2,971	$15	1	1	0	7/1	24	804	523
Fordham Hospital *	New York City	L. A. Ferraro	14,148	1,440	1,440	$15	1	0	0	7/1	12	799	367
Harlem Hospital *	New York City	S. Weintraub	16,480	1,729	1,729	$15	2	0	1	1/1&7/1	12	1,202	320
Lenox Hill Hospital *	New York City	G. L. Rohdenburg	11,168	2,015	1,997	None	1	0	0	7/1	12	337	147
Lincoln Hospital *	New York City	C. Brown	9,740	1,871	5,220	$15	2	0	0	7/1	12	617	212
Metropolitan Hospital *	New York City	A. Saccone	10,118	1,457	.....	$70	1	0	0	7/1	12	514	240
Montefiore Hospital for Chronic Dis. *	New York City	D. Marine	1,744	576	576	$50	1	0	0	7/1	12	504	382
Morrisania City Hospital *	New York City	W. Aronson	13,180	3,785	3,785	$15	1	0	0	7/1	12	825	273
New York City Hospital *	New York City	J. R. Lisa	9,393	1,301	1,063	$100	1	0	0	7/1	12	745	299
New York Hospital *	New York City	E. L. Opie	16,162	3,203	3,128	None	1	0	0	7/1	12	490	331
New York Post-Graduate Medical School and Hospital *	New York City	W. J. MacNeal	9,202	5,726	5,726	None	1	0	0	7/1	12	271	106
Presbyterian Hospital *	New York City	J. W. Jobling	19,780	4,253	4,115	$125	1	0	0	7/1	12	507	207
St. Luke's Hospital *	New York City	F. C. Wood	8,048	1,981	1,981	$50	2	0	0	1/1&7/1	24	314	177
Willard Parker Hospital	New York City	V. B. Dolgopol	6,195	66	66	$100	1	0	0	1/1	12	107	61
Strong Memorial and Rochester Municipal Hospitals *	Rochester, N. Y.	G. H. Whipple	14,211	2,630	2,630	$41	0	1	0	7/1	24	697	435
Grasslands Hospital *	Valhalla, N. Y.	G. Dalldorf	5,652	1,912	.....	$75	1	0	0	1/1&7/1	24	386	267
Duke Hospital *	Durham, N. C.	W. D. Forbus	10,976	8,173	.....	$41	1	0	0	7/1	48	464	271
Cincinnati General Hospital *	Cincinnati	R. S. Austin	15,851	.....	364	[3]	6	0	0	7/1	24	1,258	644
City Hospital *	Cleveland	H. S. Reichle	13,740	2,192	1,644	$42	1	1	0	7/1	24	1,283	572
Mount Sinai Hospital *	Cleveland	B. S. Kline	8,445	1,804	1,804	$50	1	0	1	7/1	12	224	92
St. Luke's Hospital *	Cleveland	R. Dominguez	11,883	2,674	2,376	$25	1	1	0	7/1	24	379	134
St. Vincent Charity Hospital *	Cleveland	D. J. Rehbock	5,417	1,236	1,218	$50	1	0	0	7/1	12	348	121
University Hospitals *	Cleveland	H. T. Karsner	19,336	4,401	4,401	$25	1	1	0	7/1	24	643	333
Starling-Loving University Hospital *	Columbus, O.	H. L. Reinhart	5,717	2,838	2,576	$25	1	0	0	7/1	12	286	181
Miami Valley Hospital *	Dayton, O.	W. M. Simpson	10,813	3,817	3,817	$75	1	0	0	7/1	36	541	237
State University and Crippled Children's Hospitals *	Oklahoma City	W. Hull	6,535	2,817	1,302	$60	0	0	1	7/1	24	369	164
St. Vincent's Hospital *	Portland, Ore.	T. Robertson	9,236	4,841	2,829	$25	1	0	0	1/1&7/1	12	381	186
University of Oregon Medical School Hospitals and Clinics *	Portland	F. P. Menne	7,874	1,506	1,506	$50	2	0	0	7/1	12	638	336
Abington Memorial Hospital *	Abington, Pa.	J. Eiman	6,411	1,572	1,572	$50	1	0	0	10/1	12+	241	119
Pittsburgh City Home and Hospitals	Mayview, Pa.	G. H. Fetterman	1,978	243	243	$135	1	0	0	Varies	36	559	161
Germantown Dispensary and Hospital *	Philadelphia	F. B. Lynch, Jr.	7,527	437	597	$125	1	0	0	7/1	12	297	141
Graduate Hospital of the University of Pennsylvania *	Philadelphia	E. A. Case	6,855	1,647	1,647	None	1	0	0	7/1	24	198	92
Hospital of the Univ. of Pennsylvania *	Philadelphia	E. B. Krumbhaar	11,094	2,418	2,444	None	2	0	0	7/1	12	292	209
Mount Sinai Hospital *	Philadelphia	D. R. Meranze	7,526	2,755	6,592	None	1	0	0	9/1	12	212	139
Pennsylvania Hospital *	Philadelphia	J. T. Bauer	8,915	1,722	1,722	$20	0	0	1	7/1	12	284	160
Philadelphia General Hospital *	Philadelphia	J. H. Clark	24,189	.....	.....	$50	2	0	1	7/1	12	3,681	1,982
Presbyterian Hospital *	Philadelphia	R. P. Custer	5,099	1,193	1,193	$50	1	0	0	7/1	12	223	158
Temple University Hospital *	Philadelphia	L. W. Smith	10,223	2,975	2,975	$40	1	0	1	7/1	36	357	190
Allegheny General Hospital *	Pittsburgh	S. R. Haythorn	8,975	1,715	1,715	$85	2	0	0	9/1	12	334	116
Children's Hospital	Pittsburgh	M. L. Menten	3,309	208	208	$41	1	0	0	9/1	12	210	81
Elizabeth Steel Magee Hospital	Pittsburgh	M. Cohen	9,142	1,898	1,898	$41	2	0	0	9/1	12	221	72
Mercy Hospital *	Pittsburgh	H. H. Permar	11,799	3,129	3,078	$90	2	0	0	7/1	12	428	151
Montefiore Hospital *	Pittsburgh	K. Yardumian	6,339	1,030	11,500	$50	1	0	0	9/1	36	207	109
Presbyterian Hospital *	Pittsburgh	A. Wallhauser	2,455	907	1,607	$41	1	0	0	9/1	12	113	42
St. Francis Hospital *	Pittsburgh	A. J. Bruecken	10,769	3,786	1,801	$50	4	0	1	9/1	12	428	127
Western Pennsylvania Hospital *	Pittsburgh	P. Pross	11,419	1,793	1,793	None	1	1	0	7/1	24	439	111
Reading Hospital * [5]	Reading, Pa.	E. D. Funk	6,597	940	906	$83	1	0	0	7/1	12	283	184
Rhode Island Hospital *	Providence	B. E. Clarke	8,147	2,505	.....	$100	1	0	0	Varies	12	765	295
John Gaston Hospital *	Memphis, Tenn.	H. C. Schmeisser	14,345	1,985	2,687	$32	1	1	0	7/1	12	1,153	280
Nashville General Hospital *	Nashville, Tenn.	W. A. De Monbreun	7,214	762	686	$20	0	2	0	7/1	24	454	172
Vanderbilt University Hospital *	Nashville, Tenn.	C. C. McClure	5,431	1,144	971	$35	1	1	0	7/1	24	296	167
Baylor University Hospital *	Dallas	J. M. Hill	15,316	5,371	5,371	$50	0	1	1	7/1	12	384	128
Parkland Hospital *	Dallas	A. B. Cairns	10,286	2,179	3,639	$10	1	0	0	1/1	12	704	179
Medical College of Virginia, Hosp. Div. *	Richmond	F. L. Apperly	10,195	.....	3,971	$25	0	1	0	7/1	36	693	271
Charleston General Hospital *	Charleston, W. Va.	W. Putschar	7,174	2,241	2,241	$25	1	0	0	7/1	12	283	98
State of Wisconsin General Hospital *	Madison	W. D. Stovall	11,689	3,371	3,371	$25	1	0	0	7/1	36	383	251
Columbia Hospital *	Milwaukee	G. H. Hansmann	3,561	414	1,002	$25	1	0	0	9/1	36	120	72
St. Joseph's Hospital *	Milwaukee	J. Grill	7,943	35	1,998	$100	1	0	0	1/1	12	341	97
Milwaukee County Hospital *	Wauwatosa, Wis.	J. Grill	20,091	2,064	4,971	$100	1	2	0	7/1	12	1,085	375
Queen's Hospital *	Honolulu, T. H.	N. P. Larsen	9,409	2,000	1,906	$200	1	0	0	9/1	24	328	176

21. PEDIATRICS

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [2]	Autopsies
Children's Hospital	Birmingham, Ala.	A. A. Walker	1,069	68	6,330	$25	2	0	0	7/1	12	50	11
Hillman Hospital *	Birmingham, Ala.	A. A. Walker	618	100	3,375	$40	1	0	0	7/1	12	100	28
California Babies Hospital	Los Angeles	R. P. Deakers	592	38	19,134	$100	1	0	0	7/1	12	8	5
Children's Hospital	Los Angeles	H. Dietrich	1,666	41	21,931	$100	1	8	0	7/1	24	142	125
Los Angeles County Hospital *	Los Angeles	O. Reiss	2,312	100	3,269	$10	2	0	0	4/1&10/1	24	168	89
White Memorial Hospital *	Los Angeles	E. E. Moody	137	.....	9,419	$78	1	0	0	7/1	36	10	7
Children's Hospital of the East Bay	Oakland, Calif.	W. R. Young	1,801	2	12,600	$25	1	1	0	7/1	12	48	35
Hospital for Children *	San Francisco	C. F. Gelston	431	6	5,154	$25	1	1	0	7/1	12	19	4
San Francisco Hospital *	San Francisco	.....	1,338	100	.....	[3]	2	0	0	7/1	12+	...	...
Stanford University Hospitals *	San Francisco	H. K. Faber	593	1	17,310	$25	2	1	0	7/1	24	7	7
University of California Hospitals *	San Francisco	F. S. Smyth	497	.....	13,025	$25	1	2	0	7/1	36	59	48
Children's Hospital	Denver	G. Frauenberger	3,673	15	394	$50	0	4	0	7/1	24	56	34
New Haven Hospital *	New Haven, Conn.	G. Powers	1,136	39	11,545	[3]	1	3	0	7/1	12+	62	37
Children's Hospital	Washington, D. C.	J. S. Wall	6,589	.....	61,980	$10	6	2	0	1/1&7/1	24	208	141

Numerical and other references will be found on page 860.

21. PEDIATRICS—Continued

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Freedmen's Hospital (col.)*	Washington, D. C.	A. deG. Smith	550	85	3,186	$10	1	0	0	10/1	24	47	11
Gallinger Municipal Hospital*	Washington, D. C.	M. Nicholson	1,367	99	.....	$30	2	0	0	7/1	12	76	48
Grady Hospital*	Atlanta, Ga.	W. W. Anderson and M. H. Roberts	1,753	100	18,787	$25	0	1	0	7/1	24	218	77
Henrietta Egleston Hospital for Children	Atlanta, Ga.	M. H. Roberts	1,096	77	.....	$40	2	0	0	1/1&7/1	12	88	47
University Hospital*	Augusta, Ga.	C. M. Burpee	943	40	3,189	$40	1	1	0	7/1	12	96	48
Children's Memorial Hospital	Chicago	J. Brennemann	4,258	66	64,082	$50	4	12	0	1/1&7/1	12	153	121
Cook County Hospital	Chicago	M. L. Blatt	9,187	100	10,409	$25	7	0	0	1/1&7/1	36	486	395
Michael Reese Hospital*	Chicago	I. H. Tumpeer	3,396	44	16,625	...	2	4	0	1/1&7/1	36	189	152
Presbyterian Hospital*	Chicago	C. Grulee	1,065	26	.....	$50	1	0	0	7/1	12	31	26
Provident Hospital (col.)*	Chicago	E. W. Beasley	500	68	7,816	$50	1	0	2	9/1	12	21	10
Research and Educational Hospital*	Chicago	J. Hess	171	100	.....	$50	1	0	0	7/1	12	14	10
St. Vincent's Infant and Maternity Hosp.	Chicago	M. L. Blatt	830	75	.....	$50	1	0	0	7/1	24	....	...
University of Chicago Clinics*	Chicago	F. W. Schlutz	982	39	16,169	None	1	9	1	1/1&7/1	24	38	36
Indianapolis City Hospital*	Indianapolis	J. C. Carter	668	84	6,579	$42	1	0	0	7/1	12	133	68
Indiana University Hospitals*	Indianapolis	M. Winters	1,404	83	5,295	$33	1	1	0	7/1	24	164	93
University Hospitals*	Iowa City	P. C. Jeans	932	87	1,672	$21	1	2	0	7/1	72	70	40
University of Kansas Hospitals*	Kansas City, Kan.	F. C. Neff	315	58	2,628	$50	1	0	0	7/1	12	33	29
Louisville City Hospital*	Louisville, Ky.	P. F. Barbour	2,397	98	8,866	$14	1	3	0	7/1	36	127	41
Charity Hospital*	New Orleans	.....	2,233	100	15,871	$25	1	3	0	7/1	36	252	75
Touro Infirmary*	New Orleans	L. R. DeBuys	556	35	11,031	$25	1	0	0	7/1	12	45	26
Baltimore City Hospitals*	Baltimore	T. C. Goodwin	454	92	434	$50	1	1	0	7/1	12	72	41
Johns Hopkins Hospital*	Baltimore	E. A. Park	1,104	44	41,634	None	1	3	0	7/1&9/1	60	141	94
Union Memorial Hospital*	Baltimore	D. C. W. Smith	288	19	3,906	$40	1	1	0	7/1	24	19	14
Boston City Hospital*	Boston	M. J. English	5,254	88	14,508	$83	1	0	0	Varies	12+	252	28
Boston Floating Hospital	Boston	E. W. Barron	1,117	100	14,993	[4]	1	3	0	Varies	12	17	13
Children's Hospital	Boston	K. D. Blackfan	1,237	2	27,900	None	4	0	0	1/1,5/1,9/1	16	48	23
Massachusetts General Hospital*	Boston	H. L. Higgins	382	43	6,951	$41	1	0	0	10/1	24	19	16
University Hospital*	Ann Arbor, Mich.	D. M. Cowie	1,436	82	9,280	$25	0	7	0	7/1	36	44	19
Children's Hospital	Detroit	T. B. Cooley	3,926	89	17,826	$25	2	12	0	7/1	24	404	211
Henry Ford Hospital*	Detroit	J. A. Johnston	1,050	.....	10,128	$130	1	3	0	9/1	12	34	17
Minneapolis General Hospital*	Minneapolis	A. V. Stoesser	1,683	85	.....	$25	1	0	2	1/1&7/1	24	77	48
University Hospitals*	Minneapolis	I. McQuarrie	1,913	69	6,650	$50	1	0	1	1/1&7/1	36	103	64
Mayo Foundation	Rochester, Minn.	(See page 860)											
Children's Mercy Hospital	Kansas City, Mo.	C. J. Eldridge	1,918	100	16,374	$25	2	0	0	7/1	12	106	81
Wheatley-Provident Hospital (col.)	Kansas City, Mo.	F. S. Hogue	136	10	.....	$50	1	0	0	7/1	24	4	0
St. Louis Children's Hospital	St. Louis	A. F. Hartmann	3,533	26	26,018	None	1	9	0	7/1	36	140	84
St. Louis City Hospital*	St. Louis	R. Cook	916	100	.....	$100	1	0	0	7/1	12	62	39
St. Mary's Group of Hospitals*	St. Louis	J. Zahorsky	1,350	39	.....	$25	0	0	2	7/1	34	30	21
Jersey City Hospital*	Jersey City, N. J.	.....	3,894	92	8,448	$100	1	0	0	1/1	12	76	16
Albany Hospital*	Albany, N. Y.	H. L. K. Shaw	328	60	3,372	$25	1	1	0	7/1	12	3	3
Cumberland Hospital*	Brooklyn	T. B. Givan	1,628	100	9,356	$100	1	1	0	1/1&7/1	12	71	51
Jewish Hospital*	Brooklyn	B. Kramer	574	36	11,145	$25	1	2	0	7/1	12	42	25
Kings County Hospital*	Brooklyn	G. Brockway and L. Krahulik	2,810	100	7,477	$15	2	1	0	7/1	24	215	90
Long Island College Hospital*	Brooklyn	C. A. Weymuller	471	19	13,866	$22	1	2	0	7/1	24	58	25
Norwegian Lutheran Deaconesses' Home and Hospital*	Brooklyn	C. Fisher	310	39	665	None	1	0	0	7/1	24	...	...
Children's Hospital	Buffalo	F. N. Potts	3,816	42	.....	$50	1	1	0	7/1	12	198	114
Edward J. Meyer Memorial Hospital (Buffalo City Hospital)*	Buffalo	H. Lohnes	281	86	1,451	$59	1	2	1	7/1	48	37	7
Queens General Hospital*	Jamaica, N. Y.	W. C. A. Steffen	2,293	100	7,288	$15	1	2	0	7/1	24	95	73
Charles S. Wilson Memorial Hospital*	Johnson City, N. Y.	R. J. Wharton	1,220	1	.....	$75	1	1	0	7/1	12	14	8
Babies Hospital	New York City	R. McIntosh	3,428	....	38,821	$50	1	12	0	7/1	12	95	47
Bellevue Hospital*	New York City	C. H. Smith	2,000	100	.....	Varies	14[5]	0	0	Quart.	36	...	...
Flower-Fifth Avenue Hospital*	New York City	R. A. Benson	1,432	9	3,377	$50	1	0	0	7/1	12	52	30
Harlem Hospital*	New York City	M. Gleich	1,203	98	19,499	$15	1	0	0	7/1	12	121	54
Metropolitan Hospital*	New York City	R. A. Benson	1,106	.....	6,770	$15	1	2	0	7/1	12	55	22
Morrisania City Hospital*	New York City	L. H. Barenberg	852	100	5,154	$15	1	1	0	1/1&7/1	12	57	37
Mount Sinai Hospital*	New York City	.....	.....	57	33,003	$50	1	1	0	1/1&7/1	12	...	...
New York City Hospital*	New York City	C. S. Boyd	662	100	6,909	$100	1	0	0	7/1	12	20	13
New York Foundling Hospital [14]	New York City	.....	1,614	1	10,618	$25	1	8	0	1/1&7/1	12	45	30
New York Hospital*	New York City	S. Z. Levine	854	17	33,319	None	1	5	0	7/1	60	96	68
New York Post-Graduate Medical School and Hospital*	New York City	A. G. De Sanctis	1,226	17	25,341	$90	1	1	0	1/1&7/1	12	23	12
St. Luke's Hospital*	New York City	F. E. Johnson	450	46	6,144	None	2	0	0	1/1&7/1	12	12	11
Strong Memorial and Rochester Municipal Hospitals*	Rochester, N. Y.	S. W. Clausen	1,362	62	15,601	$41	1	4	0	7/1	24	63	44
Sea View Hospital	Staten Island, N. Y.	B. Schick	360	.....	.....	$100	4	0	0	1/1&7/1	12	18	8
Syracuse Memorial Hospital*	Syracuse, N. Y.	E. J. Wynkoop	1,323	46	.....	None	1	0	0	7/1	12	35	23
Grasslands Hospital*	Valhalla, N. Y.	F. D. Barnes	595	90	1,938	$75	1	1	0	7/1	12	13	13
Duke Hospital*	Durham, N. C.	W. C. Davison	674	67	4,886	$41	0	2	0	7/1	48	106	52
Watts Hospital*	Durham, N. C.	A. H. London, Jr.	1,225	25	.....	$50	1	0	0	7/1	12+	65	12
Children's Hospital	Akron, O.	J. A. Funk	849	.....	4,326	$75	1	0	0	7/1	12	33	30
Children's Hospital	Cincinnati	A. G. Mitchell	4,129	69	22,582	$25	6	7	0	7/1	24	150	67
Cincinnati General Hospital*	Cincinnati	A. G. Mitchell	1,140	87	9,153	[4]	6	8	0	7/1	24	153	74
University Hospitals*	Cleveland	H. J. Gerstenberger	879	30	27,473	$25	1	2	0	7/1	24	86	51
Children's Hospital	Columbus, O.	E. G. Horner	2,258	87	54,201	$40	1	3	0	7/1	24	103	67
University of Oregon Medical School Hospitals and Clinics*	Portland, Ore.	J. B. Bilderback	2,535	100	8,226	$40	1	0	0	7/1	12	77	50
Children's Hospital	Philadelphia	J. C. Gittings	2,007	56	45,167	None	8	2	0	7/1	12+	58	40
Children's Hospital of the Mary J. Drexel Home	Philadelphia	J. A. Babbitt	888	58	11,603	$100	1	0	0	7/1	12	13	8
Hospital of the Univ. of Pennsylvania*	Philadelphia	J. C. Gittings	321	29	3,925	None	1	0	0	7/1	12	11	11
Jewish Hospital*	Philadelphia	.....	260	29	.....	None	1	0	0	6/15	12	8	4
Philadelphia General Hospital*	Philadelphia	.....	2,151	95	.....	$100	1	0	0	7/1	12	...	...
St. Christopher's Hospital for Children	Philadelphia	.....	1,871	5	59,394	$50	1	4	0	9/15	12	39	28
Temple University Hospital*	Philadelphia	T. F. McNair Scott	316	30	5,167	$40	1	0	1	7/1	36	...	...
Children's Hospital	Pittsburgh	.....	3,414	48	19,482	$35	1	3	0	7/1&9/1	12	254	81
Roper Hospital*	Charleston, S. C.	M. W. Beach	486	72	10,945	$40	0	1	0	7/1	12	79	25
T. C. Thompson Children's Hospital	Chattanooga, Tenn.	H. D. Long	1,197	69	15,503	$50	1	1	0	7/1	12	223	14
John Gaston Hospital*	Memphis, Tenn.	E. C. Mitchell	1,429	98	5,104	$65	1	0	0	7/1	12	130	37
George W. Hubbard Hospital of Meharry Medical College (col.)*	Nashville, Tenn.	J. W. Jones	441	67	2,916	$75	1	0	0	7/1	24	27	11
Vanderbilt University Hospital*	Nashville, Tenn.	H. Casparis	1,077	30	13,266	$35	1	2	0	7/1	24	105	67
John Sealy Hospital*	Galveston, Tex.	B. Reading	956	55	4,603	$50	1	1	0	7/1	12	44	20
University of Virginia Hospital*	Charlottesville	L. T. Royster	1,176	28	5,188	$50	1	1	0	7/1	24	72	20
Medical College of Virginia, Hosp. Div.*	Richmond	L. E. Sutton	1,344	5	2,340	$50	1	0	0	7/1	12	155	60
State of Wisconsin General Hospital*	Madison	J. Gonce	621	86	1,390	$25	1	0	0	7/1	36	...	...
Milwaukee Children's Hospital	Milwaukee	S. J. Seeger	4,043	65	35,674	$30	4	0	0	1/1&7/1	12	93	45

Numerical and other references will be found on page 860.

22. PHYSICAL THERAPY

		Chief of Service	Inpatients Treated[1]	Per Cent Free[2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths[3]	Autopsies
Stanford University Hospitals *	San Francisco	W. Northway	9,162	1	.....	$25	1	0	0	7/1	12	...	...
Michael Reese Hospital *	Chicago	C. O. Molander	925	44	6,861	...	1	0	0	7/1	12	...	...
Mayo Foundation	Rochester, Minn.	(See page 860)											

23. PLASTIC SURGERY

Mayo Foundation	Rochester, Minn.	(See page 860)											
Kings County Hospital *	Brooklyn	W. A. Coakley	.....	100	999	$15	1	0	0	7/1	12	17	0
Graduate Hospital of the University of Pennsylvania *[2]	Philadelphia	R. Ivy	213	45	293	None	1	0	0	7/1	12	4	1

24. PSYCHIATRY

Compton Sanitarium	Compton, Calif.	G. Myers	76	.....	.....	$200	1	0	0	Varies	12+	1	0
Stanford University Hospitals *	San Francisco	G. S. Johnson	370	1	12,658	$25	1	2	0	7/1	12	6	6
University of California Hospital *	San Francisco	W. J. Kerr	121	.....	1,924	$25	0	1	0	7/1	12	0	0
Mendocino State Hospital	Talmage, Calif.	R. A. Cushman	2,800	84	.....	$200	2	2	0	7/1	12+	131	49
Colorado Psychopathic Hospital	Denver	F. G. Ebaugh	908	72	6,753	$100	0	0	6	9/1	36	16	14
Neuro-Psychiatric Institute of the Hartford Retreat	Hartford, Conn.	C. C. Burlingame	839	7	.....	$200	8	0	0	Varies	18	19	8
Connecticut State Hospital	Middletown, Conn.	R. L. Leak	4,213	.....	.....	$50	1	0	0	Varies	12	310	66
New Haven Hospital *	New Haven, Conn.	E. Kahn	277	39	2,297	[a]	1	7	0	7/1	12+	9	3
Delaware State Hospital	Farnhurst, Del.	M. A. Tarumianz	1,490	81	3,826	$50	2	0	0	Varies	12+	102	22
Gallinger Municipal Hospital *	Washington, D. C.	J. L. Gilbert	2,996	99	.....	$30	1	3	0	7/1	12	108	46
St. Elizabeths Hospital	Washington, D. C.	W. Overholser	7,040	100	.....	$166	12	0	0	7/1&10/1	24	271	188
Cook County Hospital	Chicago	F. J. Gerty	6,299	100	.....	$75	3	0	0	1/1&7/1	36	127	28
Michael Reese Hospital *[7]	Chicago	M. Gitelson and R. Grinker	171	44	4,787	...	2	0	0	1/1&7/1	24	6	4
Research and Educational Hospital *	Chicago	H. D. Singer	210	100	.....	$50	3	0	5	7/1	36	1	1
University of Chicago Clinics *	Chicago	D. Slight	164	39	3,029	$50	1	1	0	7/1	24	0	0
Elgin State Hospital	Elgin, Ill.	E. Liebert	6,252	100	.....	$52	1	0	0	Varies	12	325	118
Central State Hospital	Indianapolis	M. A. Bahr	2,586	98	.....	$157	4	0	0	Varies	12+	157	61
Indianapolis City Hospital *	Indianapolis	L. Carter	575	84	1,501	$42	1	0	0	7/1	24	52	21
Logansport State Hospital	Logansport, Ind.	C. L. Williams	2,081	95	.....	$100	2	0	0	Varies	36	127	21
Iowa State Psychopathic Hospital	Iowa City	A. H. Woods	412	82	1,486	$64	2	2	1	7/1	12+	0	0
Osawatomie State Hospital	Osawatomie, Kan.	R. M. Fellows	2,030	80	.....	$75	4	0	0	7/1	24	116	53
Menninger Sanitarium	Topeka, Kan.	K. A. Menninger	179	.....	293	$120[c]	4	0	0	1/1&7/1	12	1	0
U. S. Public Health Service Hospital [4]	Lexington, Ky.	W. L. Treadway	2,074	98	.....	$92	7	0	0	7/1	12	15	9
Johns Hopkins Hospital *	Baltimore	A. Meyer	305	44	4,139	None	1	2	1	7/1&9/1	72	1	1
Spring Grove State Hospital	Catonsville, Md.	S. W. Weltmer	2,554	99	.....	$150	1	0	0	Varies	12+	144	70
Springfield State Hospital	Sykesville, Md.	I. A. Darling	3,246	99	.....	$100	3	0	0	1/1&7/1	24	172	46
Sheppard and Enoch Pratt Hospital	Towson, Md.	R. McC. Chapman	687	6	.....	$100	4	0	0	Varies	12+	20	8
McLean Hospital	Belmont, Mass.	K. J. Tillotson	452	6	.....	$75	7	0	0	Varies	24	8	2
Boston Psychopathic Hospital	Boston	C. M. Campbell	2,185	83	2,133	$75	8	0	0	9/1	12+	18	12
Boston State Hospital	Boston	H. F. Norton	2,306	99	267	$45	1	3	0	Varies	12	241	91
Massachusetts General Hospital *	Boston	S. Cobb	71	43	13,617[c]	$41	1	1	0	1/1&7/1	24	0	0
Foxboro State Hospital	Foxboro, Mass.	G. B. Pearson	1,673	.....	650	$15	1	0	0	7/1	12	83	37
Gardner State Hospital	Gardner, Mass.	C. E. Thompson	1,550	96	79	$150	2	0	0	Varies	12+	61	23
Danvers State Hospital	Hathorne, Mass.	L. Maletz	3,278	90	2,000	None	1	0	0	7/1	12	254	147
Medfield State Hospital	Medfield, Mass.	A. J. Gavigan	958	99	.....	$150	2	0	0	Varies	24	38	25
Northampton State Hospital	Northampton, Mass.	G. C. Randall	2,596	60	2,861	$150	1	0	0	Varies	12+	150	59
Grafton State Hospital	North Grafton, Mass.	H. L. Paine	1,684	.....	1,404	None	2	0	0	Varies	12+	75	15
Taunton State Hospital	Taunton, Mass.	R. G. Osterhold	2,108	86	3,295	$150	5	0	0	7/1	24	166	73
Westboro State Hospital	Westboro, Mass.	W. E. Lang	2,212	87	1,110	$150	2	0	0	7/1	24	159	33
Worcester State Hospital	Worcester, Mass.	M. Yorshis	.....	.....	.....	None	6	0	0	7/1	12	198	107
University Hospital *	Ann Arbor, Mich.	R. Waggoner	352	82	2,833	$25	1	1	0	7/1	36	2	2
City of Detroit Receiving Hospital *	Detroit	J. M. Stanton	5,526	100	.....	$83	1	1	0	7/1	12+	...	...
Eloise Hospital for Mental Diseases	Eloise, Mich.	M. H. Hoffmann	.....	100	.....	$150	7	0	0	Varies	24	...	...
Pontiac State Hospital	Pontiac, Mich.	P. V. Wagley	2,096	.....	.....	$150	2	0	0	Varies	36	92	29
Traverse City State Hospital	Traverse City, Mich.	R. P. Sheets	2,718	.....	.....	$165	5	0	0	Varies	12+	173	53
Ypsilanti State Hospital	Ypsilanti, Mich.	O. R. Yoder	1,060	85	.....	$200[c]	2	0	0	Varies	36	146	46
Minneapolis General Hospital *	Minneapolis	J. C. Michael	1,297	85	4,047	$25	1	0	0	7/1	12	154	65
University Hospitals *	Minneapolis	J. C. McKinley	607	69	3,138	$50	0	0	1	1/1&7/1	36	26	21
Mayo Foundation	Rochester, Minn.	(See page 860)											
St. Peter State Hospital	St. Peter, Minn.	G. H. Freeman	2,795	75	.....	$75	1	0	0	7/1	12	183	29
State Hospital No. 1	Fulton, Mo.	T. R. Frazer	2,300	96	.....	$100	4	0	0	7/1	12+	181	35
State Hospital No. 2	St. Joseph, Mo.	R. Hanks	3,238	.....	.....	$75	2	0	0	7/1	36	219	94
City Sanitarium	St. Louis	F. M. Grogan	4,414	87	.....	$150	11	0	0	7/1	12+	184	82
St. Louis City Hospital *	St. Louis	J. Whitehorn and J. F. McFadden	1,813	100	.....	$75	1	1	0	7/1	24	215	81
Hastings State Hospital	Ingleside, Nebr.	J. C. Nielsen	1,899	89	417	$125	5	0	0	1/1&7/1	24	120	43
Norfolk State Hospital	Norfolk, Nebr.	G. E. Charlton	1,171	90	.....	$140	4	0	0	Varies	12+	51	27
Bishop Clarkson Memorial Hospital *	Omaha	M. D. Lewis	237	3	.....	$50	1	0	0	7/1	12	2	2
New Hampshire State Hospital	Concord, N. H.	H. M. Galbraith	2,644	86	.....	$15	2	0	0	7/1	12	172	32
New Jersey State Hospital	Greystone Park	M. A. Curry	6,752	19	.....	$160	6	0	0	Varies	12+	555	96
New Jersey State Hospital	Marlboro	J. B. Gordon	2,837	28	874	$50	2	0	0	7/1	12	203	116
Albany Hospital *	Albany, N. Y.	D. E. Cameron	702	60	930	$25	1	1	0	7/1	24	36	21
Binghamton State Hospital	Binghamton, N. Y.	W. C. Garvin	3,320	91	.....	$150	3	0	0	Varies	12+	183	95
Buffalo State Hospital	Buffalo	J. A. Pritchard	2,939	87	2,515	$200	3	0	0	Varies	12+	149	31
Edward J. Meyer Memorial Hospital (Buffalo City Hospital) *	Buffalo	S. A. Hartwell	1,225	86	1,382	$59	1	2	1	7/1	48	80	14
Central Islip State Hospital	Central Islip, N. Y.	D. Corcoran	6,651	89	2,708	$150	6	0	0	1/1&7/1	36	373	135
Hastings Hillside Hospital	Hastings-on-Hudson, N. Y.	L. Wender	145	15	.....	$100	1	0	0	7/1	24	...	...
Gowanda State Homeopathic Hospital	Helmuth, N. Y.	E. V. Gray	2,871	86	.....	$150	9	0	0	Varies	12+	186	105
Kings Park State Hospital	Kings Park, N. Y.	C. H. Brush	5,439	87	2,535	$150	6	0	0	Varies	12+	283	93
Marcy State Hospital	Marcy, N. Y.	W. W. Wright	2,384	92	.....	$150	3	0	0	Varies	12+	220	37
Middletown State Homeopathic Hosp.	Middletown, N. Y.	R. Woodman	3,673	84	1,003	None	4	0	0	7/1	12	217	94
Bellevue Hospital *	New York City	K. Bowman	26,904	100	.....	Varies	13[g]	0	0	1/1&7/1	24	...	...
New York Hospital *	New York City	O. Diethelm	325	17	6,233	$50	1	8	0	7/1	48	3	1
New York State Psychiatric Institute and Hospital	New York City	N. D. C. Lewis	283	.....	2,195	$25	6	0	0	1/1&7/1	24	1	1
U. S. Marine Hospital	New York City	J. D. Reichard	945	100	85	$150	0	2	0	7/1	12	9	5
St. Lawrence State Hospital	Ogdensburg, N. Y.	P. G. Taddiken	2,649	90	1,079	$150	7	0	0	Varies	12+	167	78
Hudson River State Hospital	Poughkeepsie, N. Y.	R. P. Folsom	5,069	87	4,308	$166	7	0	0	Varies	12+	311	106
Rochester State Hospital	Rochester, N. Y.	J. L. Van De Mark	3,638	87	1,938	$150	3	0	0	Varies	12+	283	72
Strong Memorial and Rochester Municipal Hospitals *	Rochester, N. Y.	...	566	62	1,224	$41	0	1	0	7/1	12	...	...
Utica State Hospital	Utica, N. Y.	R. H. Hutchings	2,256	83	1,640	$150	5	0	0	Varies	12+	168	48

Numerical and other references will be found on page 860.

24. PSYCHIATRY—Continued

	Chief of Service		Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Grasslands Hospital *	Valhalla, N. Y.	T. P. Brennan	1,255	90	412	$117	2	3	0	1/1&7/1	36	45	32
New York Hospital-West Chester Div.	White Plains, N. Y.	C. O. Cheney	652	3	.....	$125	6	0	1	1/1&7/1	36	13	5
Duke Hospital *	Durham, N. C.	R. S. Crispell	551	67	3,260	$41	1	0	0	7/1	12	...	...
Cincinnati General Hospital *	Cincinnati	E. A. North	1,225	87	1,839	[a]	1	2	0	7/1	24	23	10
Longview State Hospital	Cincinnati	E. A. Baber	2,916	.....	440	$50	1	2	0	7/1	24	94	41
City Hospital *	Cleveland	C. W. Stone	910	85	2,072	$42	1	2	0	7/1	12	63	31
Columbus State Hospital	Columbus, O.	N. Michael	3,211	14	6,434	$75	3	0	0	7/1	36	238	78
Toledo State Hospital	Toledo, O.	O. O. Fordyce	3,304	66	1,415	$100	3	0	0	7/1	12	217	49
Harding Sanitarium	Worthington, O.	G. T. Harding	351	.....	.....	$100	1	0	0	9/1	24	4	1
Allentown State Hospital	Allentown, Pa.	H. I. Klopp	2,260	84	500	$125	5	0	0	9/1	24	83	26
Danville State Hospital	Danville, Pa.	L. R. Chamberlain	2,455	93	.....	$100	1	0	0	Varies	12+	123	28
Harrisburg State Hospital	Harrisburg, Pa.	H. K. Petry	2,230	88	345	$125	2	0	0	Varies	12+	111	44
Norristown State Hospital	Norristown, Pa.	R. B. McIntosh	3,904	76	739	$125	6	0	0	Varies	12+	203	87
Friends Hospital	Philadelphia	A. C. Buckley	269	.....	.....	$100	2	0	0	Varies	24	21	5
Institute of the Pennsylvania Hospital	Philadelphia	L. H. Smith	580	9	2,573	Varies	0	0	3	7/1	12	2	0
Pennsylvania Hospital, Department for Mental and Nervous Diseases	Philadelphia	E. V. Eyman	435	2	.....	Varies	0	0	2	7/1	12	11	4
Philadelphia General Hospital *	Philadelphia	.....	4,709	95	.....	$100	1	0	0	7/1	12	...	...
Temple University Hospital *	Philadelphia	O. S. English	394	30	16,786	$40	1	1	1	7/1	36	272	131
St. Francis Hospital *[7]	Pittsburgh	C. H. Henninger	3,020	24	464	$65	3	0	0	9/1	36	102	24
Warren State Hospital	Warren, Pa.	R. H. Israel	2,800	95	550	$125	5	0	0	Varies	36	200	56
State Hospital for Mental Diseases	Howard, R. I.	S. F. H. Howes	2,699	79	106	$150	5	0	0	Varies	12+	238	106
Butler Hospital	Providence, R. I.	A. H. Ruggles	357	3	.....	Varies	4	0	0	7/1	24	15	2
Charles V. Chapin Hospital	Providence, R. I.	H. E. Kiene	613	52	1,980	$75	1	0	0	1/1	12	26	10
Galveston State Psychopathic Hospital	Galveston, Tex.	L. R. Brown	520	10	.....	$150	3	3	0	Varies	12	7	2
John Sealy Hospital *	Galveston, Tex.	T. H. Harris	595	55	2,288	$50	1	0	0	7/1	12	25	17
University of Virginia Hospital *	Charlottesville	D. C. Wilson	415	28	949	[a]	1	1	0	7/1	36	16	8
Western State Hospital	Ft. Steilacoom, Wash.	W. N. Keller	2,963	.....	.....	$100	3	0	0	7/1	12	219	107
Eastern State Hospital	Medical Lake, Wash.	C. W. Miller, Jr.	2,138	.....	98	$100	3	0	0	7/1	12	140	84
Northern State Hospital	Sedro Woolley, Wash.	J. W. Doughty	1,971	89	.....	$100	2	0	0	7/1	24	290	147
State of Wisconsin General Hospital *[7]	Madison	W. Lorenz	998	86	.....	$25	1	1	0	7/1	12	...	...
Milwaukee County Hospital for Mental Diseases	Wauwatosa, Wis.	M. Kasak	1,531	.....	.....	$50	2	0	0	1/1&7/1	36	34	11
Milwaukee Sanitarium	Wauwatosa, Wis.	L. H. Ziegler	376	.....	.....	$75	1	0	0	7/1	36	5	1

25. RADIOLOGY

	Chief of Service		Roentgenographic Examinations	X-Ray Treatments	Radium Treatments	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Los Angeles County Hospital *	Los Angeles	R. A. Carter	138,019	10,312	834	$75	3	0	0	7/1	36	3,844	2,075
St. Vincent's Hospital *	Los Angeles	K. S. Davis	13,877	795[b]	100[b]	...	1	0	0	7/1	24	197	83
San Francisco Hospital *	San Francisco	L. Bryan	45,939	3,960	450	$50	4	0	0	7/1	24	967	520
Stanford University Hospital *	San Francisco	R. R. Newell	37,466	7,137	563	$25	1	1	0	7/1	24	212	120
University of California Hospital *	San Francisco	R. S. Stone	9,730	7,636	.....	$25	1	3	0	9/1	36	223	167
Colorado General Hospital *[8]	Denver	E. A. Schmidt	5,673	1,566	60	$40	2	0	0	7/1	24	257	197
New Haven Hospital *	New Haven, Conn.	H. M. Wilson	14,000	3,605	72	[a]	1	2	0	7/1	36	450	270
Garfield Memorial Hospital *	Washington, D. C.	E. A. Merritt	4,989	10,461	133	$50	1	1	1	7/1	24	241	116
Georgetown University Hospital *	Washington, D. C.	F. O. Coe	4,290	2,880	39	$50	0	0	2	7/1	24	212	92
Cook County Hospital	Chicago	M. J. Hubeny	71,791	26,716	.....	$50	3	0	2	1/1&7/1	36	6,155	1,327
Michael Reese Hospital *	Chicago	R. A. Arens	9,000[b]	3,200	6,652	...	2	0	0	1/1&7/1	36	650	370
Presbyterian Hospital *	Chicago	F. H. Squire	38,017	5,136	106	$50	0	0	2	1/1&7/1	36	276	182
Provident Hospital (col.) *	Chicago	B. W. Anthony	3,429	753	24	$50	1	0	0	7/1	36	151	70
Research and Educational Hospital *	Chicago	A. Hartung	9,879	8,000	.....	$50	1	0	0	9/1	36	173	148
St. Luke's Hospital *	Chicago	E. L. Jenkinson	40,000	8,000	.....	None	0	0	2	4/1,5/1,10/1	36	240	160
University of Chicago Clinics *	Chicago	P. C. Hodges	17,159	7,900	73	$25	1	2	2	7/1	36	251	203
Evanston Hospital *	Evanston, Ill.	E. R. Crowder	11,711	271	.....	$83	0	0	1	7/1	36	155	126
Methodist Episcopal Hospital *	Indianapolis	H. C. Oehsner	9,160	3,375	.....	$50	2	0	0	7/1	24	527	149
University Hospitals *	Iowa City	H. D. Kerr	23,757	10,850	164	$21	1	4	0	7/1	36	515	297
Charity Hospital *	New Orleans	A. Granger	81,020	21,550	2,092	$25	1	2	0	7/1	36	2,543	1,077
Touro Infirmary *	New Orleans	M. D. Teitelbaum	18,017	2,888	.....	$50	1	0	0	7/1	36	364	177
Johns Hopkins Hospital *	Baltimore	J. W. Pierson	108,383	7,285	.....	None	1	2	0	7/1	36	665	506
University Hospital *	Baltimore	H. J. Walton	15,376	5,082	177	$25	1	1	0	7/1	24	588	224
Beth Israel Hospital *	Boston	S. A. Robins	10,382	2,194	45	$35	1	0	0	7/1	24	240	95
Boston City Hospital *	Boston	P. F. Butler	52,387	6,824	54	$83	1	0	0	7/1	36	1,973	645
Massachusetts General Hospital *	Boston	G. W. Holmes	.....	.....	.....	None	1	2	0	7/1	36	570	295
Massachusetts Memorial Hospitals *	Boston	G. Levene	.....	5,335	.....	$41	1	2	0	1/1	36	192	139
New England Deaconess Hospital *	Boston	J. H. Marks	6,306	6,272	137	None	1	0	0	7/1	36	271	163
Peter Bent Brigham Hospital *	Boston	M. C. Sosman	10,270	3,483	.....	None	1	2	0	7/1	36	301	181
University Hospital *	Ann Arbor, Mich.	F. J. Hodges	38,222	12,134	236	$25	3	3	0	7/1	36	783	452
City of Detroit Receiving Hospital *	Detroit	J. C. Kenning	32,387	960	.....	$83	1	1	0	7/15	24	648	287
Grace Hospital *	Detroit	R. H. Stevens	7,374	4,914	.....	$50	2	0	0	7/1	36	378	187
Harper Hospital *	Detroit	L. Reynolds	15,000	9,600	310	$25	1	0	0	7/1	36	492	127
Henry Ford Hospital *	Detroit	H. P. Doub	22,761	3,290	251	$125	1	1	0	9/1	36	350	184
Hurley Hospital *	Flint, Mich.	M. W. Clift	.....	3,154	.....	$41	1	0	0	7/1	36	464	165
University Hospitals *	Minneapolis	L. G. Rigler	28,000	10,107	368	$50	0	0	3	7/1	48	423	344
Mayo Foundation	Rochester, Minn.	(See page 860)											
St. Louis City Hospital *	St. Louis	L. R. Sante	48,175	2,948	229	$50	1	2	0	7/1	36	1,206	671
Creighton Memorial St. Joseph's Hosp. *	Omaha	J. F. Kelly	5,575	4,140	287	$25	2	0	0	1/1&7/1	36	321	105
University of Nebraska Hospital *	Omaha	H. B. Hunt	4,852	3,169	200	$50	1	0	0	7/1	36	133	112
Mary Hitchcock Memorial Hospital *	Hanover, N. H.	L. K. Sycamore	4,766	1,564	43	$20	1	0	0	7/1	24	117	99
Newark Beth Israel Hospital *	Newark, N. J.	N. J. Furst	20,484	2,950	113	...	1	0	0	7/1	12	410	125
Jewish Hospital *	Brooklyn	M. G. Wasch	19,043	5,038	24	$25	1	2	0	1/1&7/1	18	482	189
Kings County Hospital *	Brooklyn	A. B. Friedman	63,907	21,079	156	$15	1	0	0	9/1	12	5,614	788
Long Island College Hospital *	Brooklyn	A. L. L. Bell	11,075	3,985	101	$22	1	1	1	7/1	72	301	95
Methodist Hospital *	Brooklyn	G. W. Cramp	15,509	1,420	81	$50	1	0	0	7/1	24	295	120
Edward J. Meyer Memorial Hospital (Buffalo City Hospital) *	Buffalo	C. R. Orr	13,742[b]	551[b]	5[b]	$59	1	2	1	7/1	48	1,100	278
Queens General Hospital *	Jamaica, N. Y.	I. S. Startz	20,228	10,450	152	$15	1	1	0	7/1	24	804	523
New Rochelle Hospital *	New Rochelle, N. Y.	A. J. Chilko	7,409	2,913	.....	$50	2	0	0	7/1	24	174	69
Bellevue Hospital *[11]	New York City	I. I. Kaplan	193,726	12,415	1,319	$15	6[x]	0	0	1/1&7/1	18	2,513	754
Beth Israel Hospital *	New York City	I. S. Hirsch	20,125	3,213	180	None	3	0	0	7/1&10/1	12	298	112
Bronx Hospital *	New York City	W. Snow	6,152	1,911	.....	$50	1	0	0	7/1	24	296	102
Flower-Fifth Avenue Hospital *	New York City	J. C. Howard	4,856[b]	1,791[b]	63[b]	None	1	0	0	Varies	36	276	75
Lenox Hill Hospital *	New York City	W. H. Stewart	27,000	2,729	.....	None	1	0	0	7/1	24	337	147

Numerical and other references will be found on page 860.

25. RADIOLOGY—Continued

		Chief of Service	Roentgenographic Examinations	X-Ray Treatments	Radium Treatments	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Montefiore Hospital for Chronic Dis.★[11]	New York City	A. J. Bendick	8,182	6,566	100	$25	2	1	0	1/1&7/1	12	504	382
Morrisania City Hospital★	New York City	S. F. Weitzner	29,294	8,116	146	$15	2	0	0	1/1	24	825	278
Mount Sinai Hospital★	New York City	M. L. Sussman	76,864	11,057	60	$50	4	0	0	1/1&7/1	24	808	400
New York City Hospital★	New York City	G. J. Plehn	9,382	250	.....	$100	1	0	0	7/1	24	745	299
New York Hospital★	New York City	J. R. Carty	.....	.....	.....	$25	1	2	0	7/1	48	493	331
New York Post-Graduate Medical School and Hospital★	New York City	W. H. Meyer	11,722	6,986	466	None	1	2	0	1/1&7/1	27	271	106
New York University College of Medicine Clinic	New York City	I. S. Hirsch	3,500	.....	.....	None	0	0	1	1/1	12	...	...
Presbyterian Hospital★	New York City	R. Golden	33,965	18,576	.....	$41	1	2	0	10/1	36	507	207
St. Luke's Hospital★	New York City	E. J. Ryan	18,092	5,136	95	$50	2	0	0	1/1	24	314	177
Strong Memorial and Rochester Municipal Hospitals★	Rochester, N. Y.	S. L. Warren	18,164	4,702	475	$83	4	0	2	7/1	36	697	435
Sea View Hospital	Staten Island, N. Y.	H. K. Taylor	28,936	30	.....	$100	1	0	0	7/1	12	501	197
Grasslands Hospital★	Valhalla, N. Y.	A. G. Debbie	26,093	5,839	39	$117	1	0	0	7/1	36	386	267
Duke Hospital★	Durham, N. C.	R. J. Reeves	42,135	8,591	347	$41	1	2	0	7/1	48	464	271
Cincinnati General Hospital★	Cincinnati	H. G. Reineke	22,576	6,238	674	[a]	5	0	1	7/1	48	1,258	644
Jewish Hospital★	Cincinnati	S. Brown	12,084	1,895	82	$50	1	0	0	7/1	36	233	68
City Hospital★	Cleveland	H. Hauser	18,272	10,937	30	$36	1	0	0	7/1	36	1,283	572
Cleveland Clinic Hospital	Cleveland	B. H. Nichols	16,850	3,500	1,000	$56	0	0	3	7/1	36	180	100
University Hospitals★	Cleveland	E. Freedman	23,129	5,454	.....	$25	1	1	0	7/1	36	643	393
State University and Crippled Children's Hospitals★	Oklahoma City	J. E. Heatley	13,883	8,938	179	$100	1	0	0	7/1	12	369	164
University of Oregon Medical School Hospitals and Clinics★	Portland	G. J. Bracher	12,317	2,749	100	$40	1	0	0	7/1	24	638	336
Hospital of the Univ. of Pennsylvania★	Philadelphia	E. P. Pendergrass	57,795	7,480	44	None	2	0	4	7/1	60	292	209
Jefferson Medical College Hospital★	Philadelphia	K. Kornblum	16,331	9,449	2,164	$25	2	0	0	2/1&7/1	36	620	252
Pennsylvania Hospital★	Philadelphia	P. A. Bishop	9,728	2,220	115	$20	2	0	0	7/1	24	284	160
Philadelphia General Hospital★	Philadelphia	B. P. Widmann	34,081	10,173	650	$100	1	0	0	8/1	24	3,681	1,932
Temple University Hospital★	Philadelphia	W. E. Chamberlain	13,665[b]	3,628[b]	.....	$40	3	0	3	7/1	36	357	190
Robert Packer Hospital★	Sayre, Pa.	S. P. Perry	4,754	1,739	75	$50	0	0	1	9/1	36	216	101
Roper Hospital★	Charleston, S. C.	S. Kalayjian	5,812[b]	.....	19[b]	$40	1	0	0	7/1	12	556	235
Baylor University Hospital★	Dallas, Tex.	J. M. Martin and C. L. Martin	2,420	4,330	200	$85	0	0	1	7/1	36	384	128
Parkland Hospital★	Dallas, Tex.	P. E. Wigby	11,213	3,652	74	$10	1	0	0	1/1	36	704	179
John Sealy Hospital★	Galveston, Tex.	J. B. Johnson	5,687	1,519	.....	$75	1	0	0	7/1	24	355	193
Mary Fletcher Hospital★	Burlington, Vt.	A. B. Soule, Jr.	2,787	2,232	24	$50	1	0	0	7/1	12	144	69
University of Virginia Hospital★	Charlottesville	V. W. Archer	9,905	4,226	118	None	2	0	0	7/1	36	357	159
Medical College of Virginia, Hosp. Div.★	Richmond	F. B. Mandeville	9,408	2,635	224	$50	1	0	0	7/1	36	603	271
State of Wisconsin General Hospital★	Madison	E. A. Pohle	32,275	9,827	294	$25	1	2	0	7/1	36	383	251

26. SURGERY

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (months)	Deaths [3]	Autopsies
Hillman Hospital★	Birmingham, Ala.	J. M. Mason and D. S. Moore	1,442	100	10,670	$100	2	0	0	7/1	12	135	41
Employees' Hospital of the Tennessee Coal, Iron and Railroad Company★	Fairfield, Ala.	L. Noland	992	.....	11,097	$150	1	0	0	7/1	48	16	6
Baptist State Hospital★	Little Rock, Ark.	R. M. Eubanks	2,038	11	310	$100	1	0	0	7/1	24	51	15
General Hospital of Fresno County★	Fresno, Calif.	J. H. Pettis	3,175	100	.....	$65	1	2	0	7/1	36	163	40
Cedars of Lebanon Hospital★	Los Angeles		1,769	19	.....	$75	1	0	0	7/1	12	67	40
Los Angeles County Hospital★	Los Angeles	G. Thomason	4,590	100	27,456	$10	6	0	0	7/1	36	322	137
White Memorial Hospital★	Los Angeles	G. Thomason	910	.....	8,237	$78	1	0	0	7/1	36	43	20
Alameda County Hospital★	Oakland, Calif.		2,754	92	.....	$40	2	6	0	7/1	36	150	74
San Bernardino County Charity Hosp.★	San Bernardino, Calif.	C. G. Hilliard	668	100	6,551	$100	1	0	0	7/1	12	83	52
San Diego County General Hospital★	San Diego, Calif.	M. C. Harding	2,339	100	3,523	$75	1	0	0	7/1	12	205	66
Hospital for Children★	San Francisco	A. Kilgore	588	6	2,913	$25	1	1	0	7/1	36	11	3
Mary's Help Hospital★	San Francisco	E. Carlson	611	4	4,595	$75	1	0	0	7/1	12	19	4
Mount Zion Hospital★	San Francisco	H. Brunn	1,906	21	6,001	$50	1	0	0	6/15	12	38	21
St. Luke's Hospital★	San Francisco	A. Weeks	4,116	8	2,696	$100	1	0	0	7/1	12	75	41
San Francisco Hospital★[17]	San Francisco	H. Brunn and L. Eloesser	4,152	100	.....	$100	9	0	0	7/1	12+	....	...
Stanford University Hospitals★	San Francisco	E. Holman	1,656	1	16,096	$25	1	4	0	7/1	60	56	28
University of California Hospitals★	San Francisco	H. C. Naffziger	1,351	.....	15,812	$25	1	8	0	7/1	60	62	47
Santa Clara County Hospital★	San Jose, Calif.	D. R. Wilson	1,786	100	.....	$150	1	0	0	7/1	12	....	...
Colorado General Hospital★[8]	Denver	C. F. Hegner	687	62	4,608	$40	1	0	0	7/1	24	65	46
St. Luke's Hospital★	Denver	J. M. Perkins	3,435	.....	.....	$50	1	0	0	7/1	12	97	36
Grace Hospital★	New Haven, Conn.	T. Russell	1,672	10	693	$90	1	1	0	7/1	36	79	28
New Haven Hospital★[17]	New Haven, Conn.	S. C. Harvey	2,031	39	13,038	[a]	2	6	0	7/1	12+	110	46
Homeopathic Hospital★	Wilmington, Del.	J. G. Spackman	1,427	35	5,449	$100	1	0	0	7/1	36	47	15
Central Dispensary and Emergency Hospital★	Washington, D. C.	J. F. Mitchell	4,568	16	5,894	$41	2	2	0	6/15	36	151	32
Freedmen's Hospital (col.)★	Washington, D. C.	E. L. Howes	907	85	6,017	$10	1	3	0	7/1	24	59	27
Gallinger Municipal Hospital★	Washington, D. C.	J. R. Veal	1,661	99	.....	$30	1	3	0	7/1	12	108	60
Garfield Memorial Hospital★	Washington, D. C.	H. H. Kerr	3,554	.....	2,137	$50	1	1	0	7/1	12	96	48
Georgetown University Hospital★	Washington, D. C.	J. A. Cahill	1,266	5	2,800	$75	1	0	0	7/1	24	64	14
Providence Hospital★	Washington, D. C.		3,380	25	.....	$15	1	1	0	7/1	24	91	42
Duval County Hospital★	Jacksonville, Fla.	E. Jelks	2,035	100	.....	$50	1	2	0	7/1	12	154	78
James M. Jackson Memorial Hospital★	Miami, Fla.	F. H. Kaudere	6,904	.....	.....	$150	1	0	0	7/1	12	221	37
Grady Hospital★	Atlanta, Ga.		4,229	100	73,190	$25	1	3	0	7/1	24	262	100
St. Joseph's Infirmary★	Atlanta, Ga.	G. P. Huguley and F. Boland	1,572	15	1,080	$90	1	2	0	7/1	36	29	7
University Hospital★	Augusta, Ga.	J. H. Sherman	2,963	40	7,189	$40	1	2	0	7/1	12	142	38
Augustana Hospital★	Chicago	N. M. Percy	1,632	14	.....	None	1	0	0	1/1	12	64	30
Grant Hospital★	Chicago		2,671	6	4,018	$50	2	0	0	7/1	36	54	12
Mercy Hospital-Loyola Univ. Clinics★	Chicago	L. D. Moorhead	2,554	17	.....	$50	1	0	0	7/1	36	94	37
Mount Sinai Hospital★	Chicago		2,711	.....	18,028	$30	1	0	0	7/1	12+	73	45
Norwegian-American Hospital★	Chicago	J. V. Fowler, Sr.	1,534	1	.....	$35	1	0	0	6/1	12	28	17
Passavant Memorial Hospital★	Chicago	L. Davis	1,518	6	.....	None	3	0	0	1/1&7/1	12	45	26
Presbyterian Hospital★	Chicago	V. C. David	2,305	26	.....	$62	2	0	0	1/1&7/1	36	67	37
Provident Hospital (col.)★	Chicago	C. G. Roberts	637	68	12,675	$50	1	0	2	9/1	60	52	30
Research and Educational Hospital★	Chicago	W. H. Cole	991	100	.....	$50	3	0	0	7/1&9/1	36	37	29
St. Joseph Hospital★	Chicago	H. McKenna	1,389	6	433	$75	1	0	0	7/1	12	39	31
St. Luke's Hospital★	Chicago	H. E. Jones	4,374	8	5,320	None	6	0	0	7/1	12	96	59
University of Chicago Clinics★	Chicago	D. B. Phemister	1,692	39	17,001	$25	1	5	5	1/1&7/1	72	69	52

Numerical and other references will be found on page 860.

26. SURGERY—Continued

		Chief of Service	Inpatients Treated[1]	Per Cent Free[2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths[3]	Autopsies
Wesley Memorial Hospital ★	Chicago	R. W. McNealy	2,175	23	.....	$35	2	0	0	1/1&7/1	12	52	33
Evanston Hospital ★	Evanston, Ill.	F. Christopher	2,969	15	9,992	$83	0	0	1	7/1	24	47	40
Indianapolis City Hospital ★	Indianapolis	M. N. Hadley	1,353	84	11,717	$42	2	0	0	7/1	12	64	21
Indiana University Hospitals ★	Indianapolis	W. D. Gatch	1,805	83	6,182	$33	2	2	0	7/1	36	62	32
University Hospitals ★	Iowa City	F. R. Peterson	2,980	87	5,502	$21	1	6	0	7/1	72	140	86
University of Kansas Hospitals ★	Kansas City, Kan.	T. G. Orr	1,040	58	4,289	$50	1	3	0	7/1	48	67	50
St. Joseph Hospital ★	Lexington, Ky.		1,730	2	300	$35	1	1	0	7/1	24	104	34
Louisville City Hospital ★	Louisville, Ky.	R. A. Griswold	4,929	98	62,424	$14	1	15	0	7/1	48	284	84
St. Joseph Infirmary ★	Louisville, Ky.	I. Abell, Sr.	2,922	14	.....	$35	1	1	0	7/1	24	80	15
Charity Hospital ★	New Orleans		10,869	100	51,675	$25	7	7	0	7/1	48	556	135
Touro Infirmary ★	New Orleans	I. Cohn	3,747	35	12,848	$25	2	0	0	7/1	12	120	70
Baltimore City Hospitals ★	Baltimore	A. M. Shipley	4,151	92	7,337	$50	1	4	0	7/1	12	406	147
Bon Secours Hospital ★	Baltimore	G. Stewart	1,010	12	657	$25	1	2	0	7/1	36	20	4
Church Home and Infirmary ★	Baltimore	T. S. Cullen	2,139	25	.....	$20	1	2	0	7/1	12+	47	15
Franklin Square Hospital ★	Baltimore	E. S. Johnson	929	54	5,080	$25	1	2	0	7/1	48	15	12
Hospital for Women ★	Baltimore	W. Rienhoff	1,139	16	2,819	$50	1	1	0	7/1	12	8	4
Johns Hopkins Hospital ★	Baltimore	D. D. Lewis	2,252	44	22,202	None	1	6	6	7/1&9/1	84	89	57
Maryland General Hospital ★	Baltimore	R. P. Bay	2,338	28	2,736	$25	1	4	0	7/1	48	107	19
Mercy Hospital ★	Baltimore	W. D. Wise	2,938	62	4,817	$50	1	4	0	9/1	36	57	12
Provident Hospital and Free Dispensary (col.) ★	Baltimore	G. C. Finney	613	77	304	$25	1	2	0	10/15	48	49	11
St. Agnes' Hospital ★	Baltimore	G. A. Stewart	2,016	33	4,327	None	1	2	0	10/1	12	54	14
St. Joseph's Hospital ★	Baltimore		1,210	40	5,787	$10	2	2	0	7/1	24	62	20
Sinai Hospital ★	Baltimore	A. Ullman	1,313	38	5,434	$50	1	3	0	7/1	12	33	9
South Baltimore General Hospital ★	Baltimore	C. W. Maxson	1,034	47	5,078	$50	1	2	0	7/1	60	66	11
Union Memorial Hospital ★	Baltimore	J. M. T. Finney, Jr.	3,960	19	9,908	$40	1	5	0	7/1	48	95	30
University Hospital ★	Baltimore	A. M. Shipley	2,581	49	10,389	$25	1	6	0	9/1	60	137	32
West Baltimore General Hospital ★	Baltimore	N. C. Marvel	775	43	2,376	$20	1	2	0	7/1	36	29	12
Beth Israel Hospital ★	Boston	C. G. Mixter	2,914	21	18,833	None	1	2	0	1/1	24	99	38
Boston City Hospital ★	Boston	I. J. Walker	11,804	88	158,038	[a]	5	1	0	Varies	12+	607	111
Children's Hospital	Boston	W. E. Ladd	1,724	2	13,205	$56	1	1	0	9/1	12	61	54
Massachusetts General Hospital ★	Boston	E. D. Churchill and A. W. Allen	3,675	43	26,781	$41	2	3	0	1/1	36	110	68
Massachusetts Memorial Hospitals ★	Boston	H. M. Clute	3,219	33	3,045	$50	2	0	0	8/1	24	73	44
Peter Bent Brigham Hospital ★	Boston	E. C. Cutler	.....	30	.....	$41	1	4	2	Quart.	12+	101	50
Cambridge Hospital ★	Cambridge, Mass.	T. H. Lanman	1,127	25	4,217	$62	1	0	0	1/1	12	...	...
Truesdale Hospital	Fall River, Mass.	P. E. Truesdale	914	18	.....	None	2	2	0	1/1&7/1	12	34	19
Memorial Hospital ★	Worcester, Mass.	B. H. Alton	2,129	14	4,710	$100	1	0	0	8/1	12	52	25
Worcester City Hospital ★	Worcester, Mass.	B. F. Andrews	4,669	61	48,978	$75	1	0	0	1/1	12+	208	71
University Hospital ★	Ann Arbor, Mich.	F. Coller	3,504	82	25,016	$25	6	5	0	7/1	36	158	82
Alexander Blain Hospital	Detroit	A. W. Blain and I. G. Downer	3,661	.....	.....	$75	3	0	0	7/1	24	117	38
City of Detroit Receiving Hospital ★	Detroit	C. G. Johnston	4,806	100	50,604	$50	2	4	0	7/15	36	...	...
Grace Hospital ★	Detroit	F. A. Kelly	4,177	30	3,682	$50	1	1	1	9/1	36	166	79
Harper Hospital ★	Detroit	A. D. McAlpine	9,016	12	.....	$25	1	6	0	7/1	36	180	38
Henry Ford Hospital ★	Detroit	R. D. McClure	5,653	.....	83,732	$130	6	25	0	9/1	12	151	95
Providence Hospital ★	Detroit	F. Kelly	5,750	10	.....	$100	1	0	0	7/1	12	...	...
Eloise Hospital (Dr. William J. Seymour Hospital) ★	Eloise, Mich.	W. J. Seymour	2,916	96	8,604	$100	1	1	0	7/1	..	118	35
Hurley Hospital ★	Flint, Mich.	R. S. Morrish	1,148	.....	.....	$41	0	2	0	7/1	12	37	13
Butterworth Hospital ★	Grand Rapids, Mich.	G. H. Southwick	935	12	.....	$125	1	0	0	7/1	36	85	33
Minneapolis General Hospital ★	Minneapolis	A. A. Zierold	2,602	85	.....	$25	0	0	6	1/1&7/1	42	192	108
University Hospitals ★	Minneapolis	O. H. Wangensteen	1,547	69	13,262	$50	1	0	4	1/1&7/1	36	99	68
Mayo Foundation	Rochester, Minn.	(See page 860)											
Ancker Hospital ★	St. Paul	A. R. Colvin	1,590	96	10,281	$50	3	0	0	7/1	36	127	102
St. Louis County Hospital ★	Clayton, Mo.		2,730	98	33,919	$50	1	3	0	7/1	12+	126	95
Kansas City General Hospital ★	Kansas City, Mo.	E. L. Miller	1,476	100	4,552	$50	2	0	0	7/1	36	142	128
St. Mary's Hospital ★	Kansas City, Mo.	M. J. Owens	1,411	13	.....	$50	1	0	0	7/1	12	52	40
Barnes Hospital ★	St. Louis	E. A. Graham	1,599	12	4,861	$25	1	8	0	7/1	24	...	...
De Paul Hospital ★	St. Louis	J. W. Thompson	1,376	23	664	$50	1	1	0	7/1	24	43	14
Homer G. Phillips Hospital for Colored ★	St. Louis	J. N. Stewart	2,329	100	11,261	$75	1	1	0	7/1	36	140	20
Jewish Hospital ★	St. Louis	M. Myer	1,250	20	3,462	$42	1	1	0	7/1	12+	42	19
St. Louis City Hospital ★	St. Louis	A. P. Rowlette	2,304	100	.....	$75	3	7	0	7/1	36	271	113
St. Luke's Hospital ★	St. Louis	E. V. Mastin	1,016	14	.....	$50	1	0	0	7/1	24	...	...
St. Mary's Group of Hospitals ★	St. Louis	W. T. Coughlin	1,323	39	11,545	$25	0	0	5	7/1	34	89	51
Creighton Memorial St. Joseph's Hosp. ★	Omaha	C. McMartin	3,355	10	3,294	$50	1	0	0	7/1	12+	90	25
Cooper Hospital ★	Camden, N. J.	P. M. Mecray	1,691	42	29,212	$83	1	0	0	12/1	36	134	38
Jersey City Hospital ★	Jersey City, N. J.		3,613	92	21,985	$100	1	3	0	10/1	24	259	23
Mountainside Hospital ★	Montclair, N. J.	F. D. Scudder	924	7	8,297	$100	1	0	0	1/1	12+	44	14
Burlington County Hospital ★	Mount Holly, N. J.	W. E. Lee	821	40	2,969	$100	1	0	0	7/1	12	49	30
Albany Hospital ★	Albany, N. Y.	J. L. Donhauser	2,898	60	9,615	$25	1	2	0	7/1	36	57	38
Coney Island Hospital ★	Brooklyn	D. A. McAteer	3,391	100	34,004	$100	1	1	0	7/1	12	137	45
Cumberland Hospital ★	Brooklyn	M. N. Foote	4,451	100	48,264	$100	1	1	0	7/1	12	89	25
Jewish Hospital ★	Brooklyn	L. M. Davidoff	2,088	36	8,053	$25	0	3	0	8/1	36	83	41
Kings County Hospital ★	Brooklyn	J. Tenopyr and R. Barber	14,312	100	52,343	$15	3	2	0	1/1&7/1	24	650	220
Long Island College Hospital ★	Brooklyn	E. Goetsch	1,925	19	15,240	$22	1	3	0	7/1	72	61	18
Norwegian Lutheran Deaconesses' Home and Hospital ★	Brooklyn	D. Livingston and L. Stork	1,276	39	20,218	None	1	0	0	7/1	24	...	...
Buffalo General Hospital ★	Buffalo	T. Wright	2,542	8	3,531	$25	1	4	0	7/1	12	150	79
Deaconess Hospital ★	Buffalo		3,338	5	240	$100	1	0	0	7/1	12	115	39
Edward J. Meyer Memorial Hospital (Buffalo City Hospital) ★	Buffalo	H. A. Smith	1,849	86	6,467	$59	1	2	1	7/1	60	139	27
Millard Fillmore Hospital ★	Buffalo	A. H. Clark	1,586	20	1,174	$25	1	1	0	7/1	12	60	31
Clifton Springs Sanitarium and Clinic	Clifton Springs, N. Y.	A. S. Taylor	512	10	.....	$50	1	0	0	7/1	36	18	11
Mary Imogene Bassett Hospital ★	Cooperstown, N. Y.	M. A. McIver	691	5	4,773	$125	1	0	0	1/1	24	43	32
Meadowbrook Hospital ★	Hempstead, N. Y.	A. S. Warinner and C. A. Hettesheimer	1,100	90	.....	$75	2	0	0	7/1	24	80	41
Queens General Hospital ★	Jamaica, N. Y.	F. N. Dealy	4,070	100	20,400	$15	1	1	0	7/1	24	226	151
Charles S. Wilson Memorial Hospital ★	Johnson City, N. Y.	F. G. Moore	2,200	1	.....	$75	2	0	0	7/1	36	26	11
Bellevue Hospital ★	New York City		11,406	100	.....	Varies	6[s]	0	0	1/1&7/1	30	...	...
Flower-Fifth Avenue Hospital ★	New York City	L. R. Kaufman and J. H. Fobes	3,215	9	14,216	$50	2	0	0	7/1	24	103	20
Harlem Hospital ★	New York City	L. T. Wright	5,728	98	32,967	$15	1	1	0	1/1&7/1	12	208	42
Hospital for Ruptured and Crippled	New York City	C. G. Burdick	1,966	.....	.....	$20	1	3	0	Quart.	12	16	6
Metropolitan Hospital ★	New York City	J. H. Fobes	1,701	.....	17,850	$100	2	0	0	7/1	12	83	20
Montefiore Hosp. for Chronic Diseases ★	New York City	A. A. Berg	102	88	.....	$25	1	2	0	1/1&7/1	18	19	17
Mount Sinai Hospital ★[23]	New York City		.....	57	27,672	$125	3	4	0	1/1&7/1	12	...	...
New York City Hospital ★	New York City	I. Kross	1,805	100	10,985	$100	1	1	0	7/1	24	137	32

Numerical and other references will be found on page 860.

26. SURGERY—Continued

	Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
New York Hospital ★	New York City—G. J. Heuer	4,530	17	102,364	None	3	14	0	7/1	72	77	30
New York Infirmary for Women and Children ★	New York City—A. Hubert	527	34	1,833	$45	1	0	0	7/1	12	7	4
New York Polyclinic Medical School and Hospital ★	New York City—	2,009	12	10,172	None	8	0	0	Quart.	24	63	19
New York Post-Gradute Medical School and Hospital ★	New York City—T. H. Russell	3,198	17	27,018	$30	2	16	0	Quart.	36	106	45
Presbyterian Hospital ★	New York City—A. O. Whipple	3,467	28	60,563	$83	2	11	0	7/1	12	...	...
Genesee Hospital ★	Rochester, N. Y.—C. Sumner	2,637	.....	7,303	$75	1	2	0	7/1	12	79	22
Rochester General Hospital ★	Rochester, N. Y.—H. L. Prince	4,146	15	8,820	$25	1	1	0	7/1	12	95	41
Strong Memorial and Rochester Municipal Hospitals ★	Rochester, N. Y.—J. J. Morton	2,267	62	13,967	$41	1	5	0	7/1	24	216	119
Hospital of the Good Shepherd ★	Syracuse, N. Y.—A. G. Swift	3,580	2	.....	$83	1	1	0	8/1	12	135	59
Grasslands Hospital ★	Valhalla, N. Y.—G. C. Adie	644	90	4,043	$75	1	2	0	7/1	36	52	32
Duke Hospital ★	Durham, N. C.—D. Hart	1,950	67	7,555	$41	1	8	0	7/1	48	107	54
Watts Hospital ★	Durham, N. C.—F. Roberson	2,650	25	4,241	$25	1	1	0	7/1	12	45	14
Rutherford Hospital	Rutherfordton, N. C.—M. H. Biggs	758	19	878	None	1	0	0	7/1	12	8	1
City Hospital ★	Winston-Salem, N. C.—A. deT. Valk	1,434	37	3,174	$50	2	2	0	7/1	36	63	39
Trinity Hospital ★	Minot, N. D.—A. L. Cameron	850	10	.....	$35	1	0	0	7/1	36	30	27
City Hospital ★	Akron, O.—	3,832	36	1,360	$105	1	3	0	7/1	36	162	68
St. Thomas Hospital ★	Akron, O.—A. F. Dorner	968	26	.....	$40	1	0	0	7/1	12	40	10
Mercy Hospital ★	Canton, O.—A. W. Warren	2,519	16	.....	$100	1	0	0	7/1	12	81	29
Christ Hospital ★	Cincinnati—	1,942	4	2,327	$75	2	0	0	6/25	12	103	37
Cincinnati General Hospital ★	Cincinnati—M. R. Reid	3,150	87	13,753	[a]	1	14	0	9/1	72	261	133
Deaconess Hospital ★	Cincinnati—W. R. Griess	2,372	6	425	$75	1	0	0	7/1	12	68	12
Good Samaritan Hospital ★	Cincinnati—J. L. DeCourcy	6,276	10	814	$35	4	0	1	7/1	48	119	34
Jewish Hospital ★	Cincinnati—J. L. Ransohoff	2,298	35	.....	$45	2	0	0	7/1	24	57	21
City Hospital ★	Cleveland—C. H. Lenhart	2,350	85	.....	$42	2	10	0	7/1	24	254	114
Mount Sinai Hospital ★	Cleveland—M. E. Blahd	2,018	23	3,715	$60	2	0	0	7/1	12	35	10
St. Alexis Hospital ★	Cleveland—J. H. Corrigan	3,490	55	12,315	$60	3	0	0	7/1	36	86	28
St. John's Hospital ★	Cleveland—G. P. O'Malley	1,134	17	.....	$25	3	0	0	7/1	24	50	6
St. Luke's Hospital ★	Cleveland—D. M. Glover	3,759	18	20,504	$25	1	3	0	7/1	48	144	35
St. Vincent Charity Hospital ★	Cleveland—H. B. Wright	3,634	32	14,241	$50	1	3	0	7/1	24	120	37
University Hospitals ★	Cleveland—C. H. Lenhart	4,638	30	20,647	$25	4	5	0	7/1	24	152	93
Starling-Loving University Hospital ★	Columbus, O.—V. A. Dodd	2,842	50	3,338	$25	2	4	0	7/1	12	136	84
Miami Valley Hospital ★	Dayton, O.—A. T. Bowers	3,187	29	.....	$75	1	0	0	7/1	12	167	44
Huron Road Hospital ★	East Cleveland, O.—H. L. Frost	1,633	.....	.....	$40	1	1	0	7/1	12	65	26
Lucas County General Hospital ★	Toledo, O.—E. J. McCormick	1,656	100	19,963	$50	1	0	0	7/1	12	97	23
St. Elizabeth's Hospital ★	Youngstown, O.—J. M. Ranz	2,800	36	.....	$50	1	1	0	7/1	12	179	14
St. Anthony Hospital ★	Oklahoma City—T. J. Hardman	4,424	9	.....	$50	1	1	0	7/1	12	116	23
State University and Crippled Children's Hospitals ★	Oklahoma City—R. M. Howard	1,340	95	3,095	$50	1	1	0	7/1	24	100	50
University of Oregon Medical School Hospitals and Clinics ★	Portland—T. M. Joyce	1,470	100	23,690	$45	1	2	0	7/1	36	156	107
Abington Memorial Hospital ★	Abington, Pa.—D. B. Pfeiffer	1,802	16	3,981	$25	1	0	0	7/1	12+	78	43
St. Luke's Hospital ★	Bethlehem, Pa.—W. L. Estes, Jr.	.....	31	.....	$50	1	0	0	7/1	12	91	20
George F. Geisinger Memorial Hospital ★	Danville, Pa.—H. L. Foss	1,991	32	9,152	$50	2	0	0	9/1	12	98	32
Germantown Dispensary and Hospital ★	Philadelphia—	3,496	25	21,192	$130	1	0	0	7/1	12	176	42
Graduate Hospital of the University of Pennsylvania ★	Philadelphia—W. E. Lee and W. Bates	1,170	45	14,907	None	2	0	0	7/1	24	92	34
Hahnemann Hospital ★	Philadelphia—G. A. Van Lennep	1,814	30	15,726	$50	2	0	0	9/1	24	125	41
Jefferson Medical College Hospital ★	Philadelphia—T. A. Shallow	2,583	75	1,267	$50	1	0	0	6/1	36	203	83
Jewish Hospital ★	Philadelphia—	2,219	29	.....	None	1	0	0	6/15	12	108	62
Pennsylvania Hospital ★	Philadelphia—W. E. Lee and J. B. Flick	1,827	31	25,708	$20	0	0	2	1/1&7/1	36	68	30
Philadelphia General Hospital ★	Philadelphia—	3,365	95	.....	$150	1	0	0	7/1	12	...	...
Temple University Hospital ★	Philadelphia—W. W. Babcock	1,596	30	2,242	$40	2	0	2	7/1	36	...	...
Woman's Hospital ★	Philadelphia—C. M. Smyth, Jr.	853	19	4,254	$25	1	0	0	10/1	24	8	3
Allegheny General Hospital ★	Pittsburgh—O. C. Gaub	2,153	52	18,245	$85	1	0	0	9/1	12	117	21
Children's Hospital	Pittsburgh—	584	48	2,408	$35	0	1	0	9/1	12	10	4
St. Francis Hospital ★	Pittsburgh—E. W. Meredith and W. O. Sherman	2,412	24	1,970	$80	1	0	0	9/1	36	60	17
Reading Hospital ★ [8]	Reading, Pa.—W. A. Lebkicher	1,456	51	6,028	$83	1	0	0	7/1	12	131	75
Robert Packer Hospital ★	Sayre, Pa.—D. Guthrie	2,152	48	6,282	$100	0	2	2	7/1	24	50	27
Roper Hospital ★	Charleston, S. C.—R. S. Cathcart	1,780	72	10,637	$40	1	2	1	7/1	12	134	65
Baroness Erlanger Hospital ★	Chattanooga, Tenn.—H. Q. Fletcher	2,839	60	15,000	$100	1	2	0	7/1	36	119	38
John Gaston Hospital ★	Memphis, Tenn.—J. L. McGehee	1,881	98	11,774	$32	1	1	0	7/1	12	156	37
George W. Hubbard Hospital of Meharry Medical College (col.) ★	Nashville, Tenn.—J. H. Hale	642	67	6,874	$75	1	0	0	7/1	24	52	19
Nashville General Hospital ★	Nashville, Tenn.—L. W. Edwards	1,141	90	6,169	$25	1	2	0	7/1	24	97	36
Vanderbilt University Hospital ★	Nashville, Tenn.—B. Brooks	2,202	30	19,479	$35	1	4	0	7/1	24	89	52
Baylor University Hospital ★	Dallas, Tex.—C. W. Flynn	5,286	15	2,988	$50	1	1	0	7/1	12	102	30
Parkland Hospital ★	Dallas, Tex.—L. Hudson	1,610	95	15,805	$10	4	0	0	1/1&7/1	24	89	24
John Sealy Hospital ★	Galveston, Tex.—A. O. Singleton	1,198	55	7,292	$50	1	1	0	7/1	12	83	33
University of Virginia Hospital ★	Charlottesville—E. P. Lehman	1,184	28	7,706	[a]	1	1	1	7/1	48	106	52
Norfolk General Hospital ★	Norfolk, Va.—	4,858	26	6,283	$50	1	0	0	7/1	12	62	31
Medical College of Virginia, Hosp. Div. ★	Richmond—I. A. Bigger	2,474	5	12,760	$50	2	5	0	7/1	12	207	61
King County Hospital ★	Seattle, Wash.—R. J. O'Shea	1,678	100	1,778	$125	1	0	0	7/1	24	128	47
Charleston General Hospital ★	Charleston, W. Va.—J. E. Cannaday	1,657	10	1,440	$100	1	1	0	7/1	36	60	26
Laird Memorial Hospital	Montgomery, W. Va.—W. R. Laird	1,010	6	2,084	$100	1	1	0	7/1	36	22	8
State of Wisconsin General Hospital ★	Madison—E. R. Schmidt	1,518	86	2,602	$25	3	5	0	7/1	36	...	...
Milwaukee Children's Hospital	Milwaukee—S. J. Seeger	1,000	65	5,595	$75	1	0	0	7/1	12	...	...
St. Joseph's Hospital ★	Milwaukee—F. Stratton	2,536	18	.....	$40	1	0	0	6/1	12	95	23
St. Mary's Hospital ★	Milwaukee—W. C. F. Witte	2,994	6	666	$90	1	0	0	7/1	12	57	22
Milwaukee County Hospital ★	Wauwatosa, Wis.—J. King	5,533	.....	23,851	$100	3	1	0	7/1	12	122	52

27. THORACIC SURGERY

Olive View Sanatorium	Olive View, Calif.—E. S. Bennett and F. S. Dolley	709	90	.....	$75	0	1	0	Varies	12+	5	2
Norwich State Tuberculosis Sanatorium (Uncas-on-Thames)	Norwich, Conn.—R. G. Urquhart	255	.....	.....	$150	1	0	0	7/1	24	7	2
City of Chicago Municipal Tuberculosis Sanitarium	Chicago—R. M. Davison	196	100	.....	$100	1	1	0	1/1	24	6	1
Sanatorium Division of Boston City Hospital	Boston—	176	100	120	$125	1	0	0	1/1	12	2	1
University Hospital ★	Ann Arbor, Mich.—J. Alexander	497	82	1,200	$25	0	1	0	7/1	24	20	11
Kings County Hospital ★	Brooklyn—E. J. Grace	.....	100	.....	$100	1	0	0	7/1	12	81	27
Homer Folks Tuberculosis Hospital	Oneonta, N. Y.—E. F. Butler	271	90	5	$100	1	1	0	7/1	12+	14	12
Sea View Hospital	Staten Island, N. Y.—L. R. Davidson	450	.....	.....	$100	3	2	0	1/1&7/1	24	62	22
City Hospital ★	Cleveland—C. H. Lenhart	.....	85	.....	$42	1	0	0	7/1	12	...	...

Numerical and other references will be found on page 860.

28. TRAUMATIC SURGERY

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Morrisania City Hospital ★	New York City	G. E. Milani	2,157	100	14,332	$15	1	0	0	7/1	12	92	3
Charleston General Hospital ★	Charleston, W. Va.	H. A. Swart	915	10	5,142	$50	1	1	0	7/1	12	38	15

29. TUBERCULOSIS

Arroyo-Del Valle Sanatorium	Livermore, Calif.	C. Bush	488	100	488	$128	0	1	0	7/1	12	11	2
Barlow Sanatorium	Los Angeles	H. W. Bosworth	180	7	1,344	$100	1	0	0	7/1	12	1	1
Los Angeles County Hospital ★	Los Angeles	C. Howson	1,027	100	3,810	$175	1	0	0	Varies	12+	277	84
Pottenger Sanatorium and Clinic	Monrovia, Calif.	F. M. Pottenger	250	.....	3,478	$50	1	0	0	7/1	12	17	9
Olive View Sanatorium	Olive View, Calif.	E. S. Bennett	3,289	90	.....	$75	0	1	0	Varies	12+	55	24
San Francisco Hospital ★	San Francisco	.....	896	100	.....	$200[c]	2	0	0	7/1	12+	...	...
Santa Clara County Hospital ★	San Jose, Calif.	C. G. Scarborough and L. P. Borden	225	100	.....	$200	2	0	0	7/1	12	...	...
Fairmont Hospital of Alameda County	San Leandro, Calif.	H. G. Trimble	480	100	.....	$175	0	1	0	7/1	12	86	50
Denver General Hospital ★	Denver	C. L. Lincoln	126	100	.....	$50	1	0	0	7/1	12	52	18
National Jewish Hospital	Denver	C. J. Kaufman	409	100	13	$100	3	0	0	Varies	12+	21	10
Sanatorium of the Jewish Consumptives' Relief Society	Spivak, Colo.	A. Shamaskin	350	100	265	$100	5	0	0	Varies	36	19	9
Norwich State Tuberculosis Sanatorium (Uncas-on-Thames)	Norwich, Conn.	H. B. Campbell	404	.....	.....	$150	1	0	0	2/1	24	51	22
Gaylord Farm Sanatorium	Wallingford, Conn.	D. R. Lyman and W. H. Morriss	345	6	500	$100	2	0	0	Varies	12+	7	1
Tuberculosis Sanatorium (Glenn Dale, Md. P.O.)	Washington, D. C.	D. L. Finucane	1,073	96	.....	$150	3	0	0	7/1	12+	134	39
University of Chicago Clinics ★	Chicago	R. G. Bloch	76	39	1,549	None	1	0	0	7/1	12	6	4
Macon County Tuberculosis Sanatorium	Decatur, Ill.	D. O. N. Lindberg	139	80	2,322	$100	1	0	0	1/1	36	3	2
Peoria Municipal Tuberculosis Sanat.	Peoria, Ill.	M. Pollak	251	96	3,365	$100	2	0	0	7/1	24	15	8
Rockford Municipal Tuberculosis Sanat.	Rockford, Ill.	W. J. Bryan	248	100	1,977	$150	1	0	0	7/1	24	24	9
Boehne Tuberculosis Hospital [22]	Evansville, Ind.	P. D. Crimm	359	48	.....	$100	1	1	0	7/1	48	40	39
Western Maine Sanatorium	Greenwood Mountain	L. Adams	305	.....	177	$34	1	0	0	7/1	12+	16	6
Baltimore City Hospitals ★	Baltimore	H. M. Stein	651	92	.....	$54	1	1	0	7/1	12	179	104
Sanatorium Division of Boston City Hospital	Boston	J. A. Foley	1,082	100	.....	$100	3	0	0	Varies	12	170	52
North Reading State Sanatorium [19]	N. Wilmington, Mass.	C. C. MacCorison	432	.....	.....	$160	1	0	0	Varies	12	15	3
Rutland State Sanatorium	Rutland, Mass.	E. B. Emerson	608	55	1,489	$75	1	0	0	Varies	12	56	26
Plymouth County Hospital	South Hanson, Mass.	B. H. Peirce	167	.....	479	$100	1	0	0	Varies	12	24	10
Middlesex County Sanatorium	Waltham, Mass.	H. D. Chadwick	708	.....	15,741	$150	2	0	0	Varies	12	85	25
Belmont Hospital	Worcester, Mass.	.....	280	.....	3,900	$133	3	0	0	Varies	12+	43	26
University Hospital ★	Ann Arbor, Mich.	J. Barnwell	.....	82	750	$25	1	1	0	7/1	36	22	9
American Legion Hospital	Battle Creek, Mich.	W. L. Howard	408	100	.....	$125	4	0	0	Varies	12+	50	10
Herman Kiefer Hospital	Detroit	E. J. O'Brien and B. H. Douglas	2,242	97	.....	$150	7	0	0	Varies	12+	311	59
Michigan State Sanatorium	Howell, Mich.	G. L. Leslie	728	99	431	$150	1	0	0	Varies	12+	47	10
Morgan Heights Sanatorium	Marquette, Mich.	R. F. Berry	180	92	.....	$150	1	0	0	1/1	12	28	7
William H. Maybury Sanatorium	Northville, Mich.	H. S. Willis	1,437	.....	.....	$150	6	0	0	Varies	12+	109	56
Oakland County Tuberculosis Sanat.	Pontiac, Mich.	G. A. Sherman	426	63	.....	$150	3	0	0	7/1	12+	28	15
Nopeming Sanatorium	Nopeming, Minn.	A. T. Laird	403	94	6,711	$150	2	0	0	1/1&7/1	12	22	12
Glen Lake Sanatorium	Oak Terrace, Minn.	E. S. Mariette	1,241	90	.....	$10	1	0	0	7/1	12	108	77
City Isolation Hospital	St. Louis	G. S. Bozalis	154	95	.....	$150	1	0	0	7/1	12	19	10
Mount St. Rose Sanatorium	St. Louis	R. A. Kinsella	329	53	.....	$25	0	0	1	7/1	24	45	16
Robert Koch Hospital	St. Louis	G. D. Kettelkamp	756	100	.....	$100	2	5	0	7/1	24	81	55
New Jersey State Sanatorium	Glen Gardner	S. B. English	820	4	1,707	$83	7	0	0	Varies	12+	20	7
Jersey City Hospital ★	Jersey City, N. J.	.....	179	92	13,488	$100	2	2	0	7/1	12	27	7
Hudson County Tuberculosis Hospital	Jersey City, N. J.	B. S. Pollak	398	100	7,524	$100	7	0	2	Varies	36	52	12
Albany Hospital ★	Albany, N. Y.	R. J. Erickson	342	60	1,755	$25	0	1	0	7/1	12	39	25
Montefiore Hospital Country Sanatorium	Bedford Hills, N. Y.	M. Pinner	498	98	.....	$100	3	0	0	Varies	12+	5	1
Kings County Hospital ★	Brooklyn	C. E. Hamilton	235	100	9,499	$100	1	2	0	1/1&7/1	12	...	...
Kingston Avenue Hospital	Brooklyn	F. Murray	229	100	845	$100	1	1	0	1/1&7/1	12	10	9
Edward J. Meyer Memorial Hospital (Buffalo City Hospital) ★	Buffalo	D. R. McKay	684	86	4,115	$59	1	2	0	7/1	36	159	33
Hermann M. Biggs Memorial Hospital	Ithaca, N. Y.	J. K. Deegan	370	75	4,250	$100	1	1	0	7/1	24	24	13
Bellevue Hospital ★	New York City	J. B. Anderson	2,743	100	.....	Varies	13[g]	0	0	1/1&7/1	24	...	...
Lenox Hill Hospital ★	New York City	G. Thorburn	224	40	5,008	$50	1	0	0	7/1	12	12	12
Metropolitan Hospital ★	New York City	G. C. Ornstein	858	.....	1,225	$100	1	4	0	7/1	12	177	32
Montefiore Hospital for Chronic Dis. ★	New York City	M. Pinner	416	88	.....	$25	1	2	0	1/1&7/1	18	79	61
Homer Folks Tuberculosis Hospital	Oneonta, N. Y.	R. Horton	505	90	4,932	$137	2	1	0	7/1	12+	38	27
Municipal Sanatorium	Otisville, N. Y.	J. P. Dworetzky	1,052	.....	.....	$120	7	0	0	1/1&7/1	24	1	0
Iola-Monroe County Tuberculosis Sanat.	Rochester, N. Y.	E. Bridge	830	94	11,000	$100	4	0	0	7/1	24	91	49
Sea View Hospital	Staten Island, N. Y.	G. Ornstein	2,941	.....	.....	$100	14	3	0	1/1&7/1	12	382	144
Trudeau Sanatorium	Trudeau, N. Y.	F. H. Heise	422	2	.....	None	2	0	13	Varies	12+	6	3
Grasslands Hospital ★	Valhalla, N. Y.	J. M. Nicklas	219	90	6,470	$117	3	3	0	7/1	36	57	41
Jefferson County Sanatorium	Watertown, N. Y.	T. S. Montague	181	91	1,769	$125	1	0	0	7/1	24	7	6
State Tuberculosis Sanatorium	San Haven, N. D.	G. A. Dodds	619	93	321	$75	1	0	0	7/1	18	45	25
Hamilton County Tuberculosis Sanat.	Cincinnati	H. K. Dunham	1,194	95	.....	$150	5	0	0	7/1	12+	195	96
City Hospital ★	Cleveland	J. C. Placak	1,244	85	3,731	$75	2	0	0	7/1	12	196	62
Sunny Acres, Cleveland Tuberculosis Sanatorium	Warrensville, O.	R. H. Browning	863	99	8,036	$166	3	3	0	7/1	12+	19	9
Eagleville Sanatorium for Consumptives	Eagleville, Pa.	A. J. Cohen	341	40	6,268	$125	2	0	0	1/1&7/1	12+	14	2
Germantown Dispensary and Hospital ★	Philadelphia	F. M. McPhedran	64	25	3,387	$125	1	0	0	7/1	12	7	3
White Haven Sanatorium	White Haven, Pa.	F. A. Craig	336	6	.....	$75	5	0	0	Varies	12+	89	49
State Sanatorium	Wallum Lake, R. I.	H. J. Connor	779	88	3,777	$150	9	0	0	Varies	12+	85	34
Pine Breeze Sanatorium	Chattanooga, Tenn.	A. Steward	443	87	.....	$150	1	0	0	1/1	24	60	12
Davidson County Tuberculosis Hospital	Nashville, Tenn.	R. R. Crowe	511	86	3,248	$150	1	0	0	7/1	36	53	13
Woodmen of the World War Memorial Hospital	San Antonio, Tex.	C. J. Koerth	286	100	.....	Varies	1	0	0	7/1	12	20	11
King County Tuberculosis Hospital	Seattle, Wash.	F. Slyfield	290	85	3,178	$100	1	0	0	7/1	24	40	26
Hopemont Sanitarium	Hopemont, W. Va.	A. V. Cadden	760	.....	340	$165	6	0	0	7/1	12+	60	30
Wisconsin State Sanatorium	Statesan	H. M. Coon	315	94	.....	$200	3	0	0	Varies	12+	15	10

30. UROLOGY

Hillman Hospital ★	Birmingham, Ala.	W. F. Scott	539	100	53,178	$40	1	0	0	7/1	12	40	11
Los Angeles County Hospital ★	Los Angeles	J. J. Crane	2,438	100	12,652	$10	6	0	0	4/1&10/1	36	188	89
White Memorial Hospital ★	Los Angeles	R. Barnes	414	.....	8,937	$78	1	0	0	7/1	36	18	10
San Francisco Hospital ★	San Francisco	C. M. Johnson and J. R. Dillon	637	100	.....	[a]	1	0	1	7/1	12+	...	...
Stanford University Hospital ★	San Francisco	J. Dillon	440	1	19,553	$25	1	0	0	7/1	24	19	9
University of California Hospital ★	San Francisco	H. C. Naffziger	537	.....	17,664	$25	1	0	0	7/1	36	21	17
New Haven Hospital ★	New Haven, Conn.	C. Deming	280	39	2,935	[a]	1	0	0	7/1	12+	21	3

Numerical and other references will be found on page 860.

30. UROLOGY—Continued

		Chief of Service	Inpatients Treated [1]	Per Cent Free [2]	Outpatient Visits	Beginning Salary	Residents	Assistant Residents	Fellowships	Service Begins	Available Training (Months)	Deaths [3]	Autopsies
Gallinger Municipal Hospital *	Washington, D. C.	W. P. Herbst	592	99	.....	$30	1	0	0	7/1	12	45	22
Grady Hospital *	Atlanta, Ga.	J. T. Floyd and M. K. Bailey	663	100	13,181	$25	1	1	0	7/1	24	47	8
University of Chicago Clinics *	Chicago	C. B. Huggins	.....	39	4,551	$25	1	0	1	7/1	12	4	2
Indianapolis City Hospital *	Indianapolis	W. E. Tinney	394	84	5,557	$42	1	0	0	7/1	12	32	14
University Hospitals *	Iowa City	N. G. Alcock	1,416	87	1,995	$21	1	0	0	7/1	72	109	49
Charity Hospital *	New Orleans	.....	3,068	100	22,191	$25	1	2	0	7/1	36	163	49
Touro Infirmary *	New Orleans	E. Burns	.....	35	588	$25	1	0	0	7/1	12	...	...
Johns Hopkins Hospital *	Baltimore	H. H. Young	952	44	8,271	None	1	2	0	7/1&9/1	48	42	36
Beth Israel Hospital *	Boston	E. G. Crabtree	371	21	2,848	$39	1	0	0	7/1	24	...	...
Boston City Hospital *	Boston	H. H. Howard	466	88	36,484	None	1	1	0	Varies	12+	50	21
Massachusetts General Hospital *	Boston	G. G. Smith	354	43	16,347	$41	1	1	0	1/1	24	28	15
Massachusetts Memorial Hospitals *	Boston	S. N. Vose	489	33	4,529	None	1	0	0	7/1	24	17	9
University Hospital *	Ann Arbor, Mich.	R. M. Nesbit	1,519	82	11,975	$25	0	2	2	7/1	60	70	40
Battle Creek Sanitarium	Battle Creek, Mich.	W. F. Martin	467	.....	.....	$150	1	1	1	7/1	24	2	0
City of Detroit Receiving Hospital * [18]	Detroit	W. H. Keane	1,190	100	6,801	$83	1	1	0	7/15	24	...	...
Harper Hospital *	Detroit	F. H. Cole	.....	12	.....	$25	0	1	0	7/1	36	12	4
Henry Ford Hospital *	Detroit	J. K. Ormond	330	.....	10,954	$130	1	2	0	9/1	12	10	4
Eloise Hospital (Dr. William J. Seymour Hospital) *	Eloise, Mich.	W. L. Sherman	958	96	5,083	$83	1	1	0	7/1	12	44	20
University Hospitals *	Minneapolis	O. H. Wangensteen	572	69	1,887	$50	0	0	1	7/1	36	...	...
Mayo Foundation	Rochester, Minn.	(See paragraph below)											
Ancker Hospital * [8]	St. Paul	F. E. B. Foley	639	96	3,928	$50	1	0	0	6/1	12	44	30
Kansas City General Hospital *	Kansas City, Mo.	C. S. Capell	793	100	3,451	$50	1	0	0	7/1	12	78	65
St. Louis City Hospital *	St. Louis	B. F. May	852	100	.....	$100	1	0	0	7/1	12	57	28
St. Mary's Group of Hospitals *	St. Louis	C. E. Burford	227	39	3,815	$25	0	0	1	7/1	34	18	7
Bayonne Hospital and Dispensary * [21]	Bayonne, N. J.	.....	405	71	599	[a]	1	0	0	1/1&7/1	..	9	4
Jersey City Hospital *	Jersey City, N. J.	.....	894	92	15,358	$100	1	1	0	1/1&7/1	12	27	10
Newark City Hospital *	Newark, N. J.	C. R. O'Crowley	629	100	.....	$20	1	0	0	7/1	12	58	5
Albany Hospital *	Albany, N. Y.	J. E. Heslin	544	60	2,651	$25	0	1	0	7/1	24	13	9
Kings County Hospital *	Brooklyn	C. S. Cochrane	2,111	100	4,725	$15	1	1	0	7/1	24	252	22
Long Island College Hospital *	Brooklyn	F. L. Senger	468	19	8,709	$22	1	1	0	7/1	24	9	2
Buffalo General Hospital *	Buffalo	F. J. Parmenter	679	8	.....	$25	0	1	0	7/1	12	32	14
Edward J. Meyer Memorial Hospital (Buffalo City Hospital) *	Buffalo	F. J. Parmenter	486	86	6,702	$59	1	2	1	7/1	48	40	7
Queens General Hospital * [20]	Jamaica, N. Y.	F. G. Riley	827	100	7,154	$15	1	1	0	7/1	24	32	21
Bellevue Hospital *	New York City	H. S. Jeck	1,579	100	.....	Varies	3[g]	0	0	1/1&7/1	24	...	...
Morrisania City Hospital *	New York City	T. Townsend	739	100	4,378	$15	1	3	0	1/1&7/1	24	37	13
New York City Hospital *	New York City	J. H. Morrissey	535	100	2,067	$100	1	0	0	7/1	12	38	10
New York Hospital *	New York City	A. R. Stevens and O. Lowsley	436	17	17,710	None	2	2	0	7/1	72	45	23
New York Post-Graduate Medical School and Hospital *	New York City	J. A. Hyams	331	17	8,259	$30	1	0	0	7/1	12	14	1
Presbyterian Hospital *	New York City	J. B. Squier	1,272	28	11,284	$41	1	5	0	1/1&7/1	36	...	...
Roosevelt Hospital *	New York City	S. A. Beisler	429	15	.....	None	2	0	0	1/1&7/1	12	...	...
Strong Memorial and Rochester Municipal Hospitals *	Rochester, N. Y.	W. W. Scott	602	62	4,725	$41	0	2	0	7/1	12	...	...
Sea View Hospital	Staten Island, N. Y.	A. Greenberger	220	.....	.....	$100	1	0	0	7/1	12	6	4
Duke Hospital *	Durham, N. C.	E. P. Alyea	570	67	3,971	$41	1	0	0	7/1	48	21	7
Watts Hospital *	Durham, N. C.	W. M. Coppridge	384	25	358	$50	1	0	0	7/1	12+	3	0
City Hospital *	Cleveland	C. H. Lenhart	278	85	.....	$42	1	0	0	7/1	12	...	...
University Hospitals *	Cleveland	J. Joelson	699	30	11,498	$25	1	0	0	7/1	24	18	10
Starling-Loving University Hospital *	Columbus, O.	W. N. Taylor	337	50	2,850	$25	1	1	0	7/1	12	29	21
University of Oregon Medical School Hospitals and Clinics *	Portland	.....	262	100	8,627	$150[c]	0	0	2	7/1	12+	38	27
Graduate Hospital of the University of Pennsylvania *	Philadelphia	J. C. Birdsall and W. Mackinney	236	45	12,622	None	1	0	0	7/1	12	7	1
Hospital of the Univ. of Pennsylvania *	Philadelphia	A. Randall	440	29	4,667	None	1	0	0	7/1	24	15	15
Pennsylvania Hospital *	Philadelphia	L. Herman	391	31	2,371	$20	0	1	1	7/1&9/1	24	16	7
Presbyterian Hospital *	Philadelphia	J. C. Birdsall	211	16	8,375	None	1	0	0	7/1	12	16	8
Mercy Hospital *	Pittsburgh	E. J. McCague	511	30	.....	$25	1	0	0	9/1	36	25	14
Parkland Hospital *	Dallas, Tex.	F. I. Folsom	229	95	2,417	$10	1	0	0	7/1	12	22	7
University of Virginia Hospital *	Charlottesville	S. A. Vest	514	28	3,960	....	1	1	0	7/1	36	19	8
State of Wisconsin General Hospital *	Madison	I. R. Sisk	621	86	.....	$25	1	2	0	7/1	36	...	...
Milwaukee County Hospital *	Wauwatosa, Wis.	R. S. Irwin	523	.....	16,836	$100	0	1	0	7/1	12	32	29

Mayo Foundation Fellowships—The Mayo Foundation for Medical Education and Research, Rochester, Minnesota; D. C. Balfour, director; three-year fellowships, beginning quarterly, leading to the degree of M.S. or Ph.D. with field named from the University of Minnesota: in Anesthesia, Dermatology and Syphilology, Internal Medicine, Neurology and Psychiatry, Neurosurgery, Obstetrics and Gynecology, Ophthalmology, Orthopedic Surgery, Otolaryngology, Pathology, Pediatrics, Physical Medicine, Plastic Surgery, Proctology, Radiology, Surgery, Urology; stipend $900 per year (clinical fellowships including pathology and radiology—278).

a. Compensation arranged by medical school and hospital.
b. Represents number of patients treated.
c. In lieu of maintenance.
d. Outpatient and home delivery service only.
e. Total represents both neurologic and psychiatric outpatient visits.
f. Includes both ophthalmologic and otolaryngologic patients.
g. Includes residencies, assistant residencies and straight internships following previous intern training.
h. Hospital facilities by affiliation.
1. Inpatients: Numbers refer to total inpatients treated in specialty. Obstetrical admissions do not include newborns. In pathology and anesthesiology total hospital admissions are used.
2. The percentage of free patients refers to the entire hospital service.
3. Deaths and autopsies are reported for individual specialties. In obstetrics only maternal deaths are included; in anesthesiology, pathology and radiology all hospital deaths are listed exclusive of stillbirths.
4. Hospital service confined to drug addicts.
5. Applications will be considered only from men who have had a previous year's training in some recognized pathological laboratory.
6. Includes gynecology.
7. Includes neurology.
8. Hospital appoints residents from own house staff.
9. Includes neurosurgery.
10. Includes orthopedics.
11. Separate appointments approved in roentgenology and radium therapy.
12. Orthopedic resident covers eye, ear, nose and throat service.
13. Apply to chief of service for information about affiliating hospitals.
14. Three assistant residents serve six months in obstetrics.
15. Service transferred to Welfare Hospital.
16. Includes obstetrics.
17. Several services include obstetrics-gynecology.
18. Includes proctology.
19. Admissions confined to children.
20. Includes dermatology.
21. Affiliating—usually with New York Post-Graduate Medical School, New York City.
22. Includes thoracic surgery.
23. Private and semi-private pavilions.
24. Dental as well as medical degree required.
25. Includes x-ray and radium therapy.
26. Mixed residencies represent general hospital experience of at least one year duration following an approved internship. All hospitals approved for intern training are also certified for general or mixed residencies.
27. Includes three research residencies at the Research Division for Chronic Diseases, New York City.

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SATURDAY, AUGUST 26, 1939

ADVANCES IN MEDICAL EDUCATION

During the past five years, in spite of financial difficulties, the survey of medical schools conducted by the Council on Medical Education and Hospitals has yielded tangible results in organization, equipment and resources of medical schools. This is true to a degree of all, but most significant in those institutions which, when visited, showed the greatest need. Among these lower ranking schools, twenty-four have increased their budgets by more than a million dollars, the average amount per school being $47,000. Twenty-five have increased the number of salaried instructors. Twenty-two have definitely improved their procedure in the selection of students and have adopted higher scholastic standards for admission. For better preclinical facilities, seventeen schools have expended from $29,000 to $500,000 each. In twenty schools the cost of improved facilities for clinical teaching aggregates $10,000,000. While money alone does not guarantee a sound educational institution, adequate financial support is absolutely essential for a medical school which would meet the exacting standards of the present day. The number of schools which can meet these standards is steadily increasing.

The prevailing situation is a happy contrast to the disorderly conditions which confronted the Council during the first five years of its existence—from 1904 to 1909. At that time many of the so-called medical schools were proprietary and their existence depended largely on student fees. Their faculties were without special training in the subjects they taught and had neither the facilities nor the time for research. Teaching was didactic with the meager laboratory and clinical facilities available at the time.

Finally, the most important element in medical education, the student and his qualifications, are in sharp contrast to the average student of thirty years ago. From 1904 to 1909 only the better medical schools required that entering students be graduates of high schools. Today, while the statutes of five states still require but one year or less of preliminary preparation before entering medical school, 96.2 per cent of the last entering class of medical students had had three years or more of premedical education.

The activities of the Council in undergraduate medical education over the past thirty-five years have yielded incalculable benefits to the public health.

TERMINOLOGY IN GRADUATE MEDICAL EDUCATION

Unfortunately, a lack of uniformity prevails in the use of such terms as graduate medical education, postgraduate medical instruction and continuation study. Various organizations have attempted to formulate definitions applicable to the specific circumstances with which they were concerned. Since 1937 the Council on Medical Education and Hospitals has been engaged in a study of graduate medical education particularly as it applies to courses for practicing physicians. To facilitate this survey, an attempt is being made to formulate suitable terminology which may be acceptable to those interested.

Graduate medical education in the broad sense covers all types of instruction which follow the award of the M.D. degree. In a more restricted sense, however, the term applies to well organized, systematic, scientific and clinical instruction planned for the benefit of the student under the supervision of a medical school, hospital or other educational institution. It may or may not lead to other academic degrees. Graduate education includes apprenticeships in the form of residencies and fellowships as well as other opportunities for graduate study with less dependence on clinical experience. The term residency is applied to a hospital service of one or more years' duration, limited to a single field and following an approved internship. Fellowships in some cases are indistinguishable from residencies; in others they offer greater opportunity for the study of basic sciences and research. Fellowships are more often university than hospital appointments and may be under the direction of the graduate school. This type of instruction is ordinarily designed to prepare the physician for practice of a specialty and is usually a requirement of the specialty boards.

The term "postgraduate" has been applied to short periods of study undertaken by the physician after licensure and after he has established himself in practice. Because abuses of the diploma privilege have given to this word an unsavory connotation, it may well be discarded. Currently two general forms of continuation study are offered. The first consists of courses offered in metropolitan centers with facilities for systematic instruction as provided in medical and other

educational institutions where abundant clinical material and medical laboratories are available; these may be designated "opportunities for continuation study with ample facilities for clinical instruction." The second form of postgraduate study now being offered practicing physicians is by lectures, demonstrations and clinics. This differs in that the programs may be more brief and are made available to the physician in or close to his home and therefore do not cause any serious interruption of his practice. The extension divisions of universities have aided materially in organizing such courses in cooperation with state medical societies, since the technic of instruction follows the somewhat conventional pattern of extension courses in nonmedical subjects. In general it may be said that physicians engaging in continuation study desire two kinds of courses: (1) instruction in subjects which were incompletely or unsatisfactorily taught during their undergraduate period and (2) subjects of practical value such as recent advances in the prevention, diagnosis and treatment of disease.

Regardless of the terms applied to the particular forms of graduate study, the educational program should be systematic in organization and, above all, clinical and scientific in content. Finally, the success of the present ventures in this field depend, first, on the willingness and ability of medical educators to provide faculties and facilities in medical centers and hospitals and, second, on the development of incentives for practicing physicians, so that they may be encouraged to continue their medical studies on a voluntary basis.

CONFERENCES ON THERAPY

Actual reports of conferences by members of the departments of pharmacology and medicine of Cornell University Medical College and the New York Hospital, in collaboration with other departments, have appeared in THE JOURNAL since December 1938.[1] Many pharmacologists and members of other departments of medical schools as well as practicing physicians have expressed their belief that these conferences on therapy are most helpful for a proper understanding of pharmacology and for its integration in the medical curriculum. There is practically no liaison of pharmacology with other clinical departments in the medical school with the exception of medicine. It is desirable for all clinical departments to promote a better understanding of such essential subjects as toxicology and biologic, chemical and clinical assays.

Evaluation of the use of drugs in the prevention, diagnosis and treatment of disease is difficult and the application of therapeutic measures is an individual matter requiring judgment of clinical circumstances. Clinically trained instructors are better equipped to teach therapeutics than are others without such training. The recent development of the conference on therapy brings together those whose interest begins with the initial development of an agent proposed for therapeutic use and those concerned with its final utilization in the prevention, diagnosis and treatment of disease. Pharmacology, being a pure science, is somewhat aloof from clinical medicine, and teachers of pharmacology are frequently quite detached from the patient. Teachers should, and in many cases do, realize that students are interested in pharmacology because they are anxious to become familiar with the biologic action of drugs. Their ultimate goal is the application of this knowledge in the practice of medicine.

Other schools of medicine have introduced conferences on therapy in a manner somewhat different from that tried at Cornell. Some utilize case records which are presented in therapeutic discussions revolving round the problems presented by the individual patient. At other schools therapeutic conferences are held at the bedside. Sometimes discussions by pharmacologists and the preclinical teachers throw light on the methods of treatment, which are carried out in the presence of students. Some instructors contend that conferences on therapy should include members of the departments of radiology, surgery, pediatrics and other specialties of medicine, so that the therapeutic aids of these departments, including physical agents, may be brought to the attention of students. Much of the success of conferences of this kind depends on the desire for cooperation on the part of other departments in the medical school as well as on the method by which they are conducted.

Informal instruction in the use of therapeutic agents by pharmacologists and others competent to judge therapeutic activity should lead to a better understanding by medical students and practicing physicians of the usefulness or uselessness of many of the therapeutic agents now being proposed. It would also serve to augment the work of the Council on Pharmacy and Chemistry. Such conferences provide excellent opportunities to point out the fallacies of both therapeutic faddism and nihilism and give physicians a more critical attitude toward all drugs. By suitable development of this technic in medical education, pharmacology may find its rightful place in the curriculum.

1. Conferences on Therapy:
Treatment of Pain, J. A. M. A. **111**: 2293 (Dec. 17) 1938.
Treatment of Coronary Disease, ibid. **111**: 2482 (Dec. 31) 1938.
Disorders of Cardiac Rhythm, ibid. **112**: 322 (Jan. 28) 1939.
Treatment of Edema, ibid. **112**: 837 (March 4) 1939.
Treatment of Secondary Shock, ibid. **112**: 1057 (March 18) 1939.
Choice of Drugs, ibid. **112**: 1151 (March 25) 1939.
Treatment of Convulsions, ibid. **112**: 1250 (April 1) 1939.
Use of Drugs in Treatment of Allergic Conditions, ibid. **112**: 1335 (April 8) 1939.
Treatment of Infections of Genito-Urinary Tract, ibid. **112**: 1584 (April 22) 1939.
Evaluation of Drugs Used in Treatment of Syphilis, ibid. **112**: 2415 (June) 10) 1939.
Treatment of Addison's Disease, ibid. **112**: 2511 (June 17) 1939.
Vitamins; Vitamin B_2 Therapy, ibid. **113**: 297 (July 22) 1939.
Use of Anthelmintics, ibid. **113**: 410 (July 29) 1939.
Treatment of Poisoning, ibid. **113**: 493 (Aug. 5) 1939.

Current Comment

WHAT'S A DOCTOR WORTH?

Recent issues of Philadelphia newspapers published the prevailing wage rates adopted by the Philadelphia County Assistance Board for occupations of various types. The highest rate given appears to be that for a bricklayer who is a skilled foreman. To him the sum of $1.79 an hour is permitted. Next comes an iron and steel worker, who gets $1.65 an hour, and after that an ordinary bricklayer, who gets $1.62 an hour. There are still some occupations which are preferable to that of physician, including that of marble setter and polisher at $1.60 an hour and plasterer at $1.55 an hour. In the next group come the doctors. Among those who are allowed $1.51 an hour are found the air compressor operator, the dredge operator, the power shovel operator, the pump operator, the roller operator, the architect (registered or certified), the statistician (graduate or certified), the lawyer and the physician. There must be some explanation for this classification but it is not easily apparent. The study of such lists provides much interesting information. For example, a tree pruner, who might be considered in the professional class, gets only $0.59 an hour; a sign painter, whose work is in the nature of artistry, $1.29 an hour; a secretary-stenographer, $0.70 an hour, and a translator $1 an hour. The lowest rate paid to anybody is $0.50 an hour. A machinist's helper gets $0.59 an hour but a marble setter's helper gets $1 an hour and a riprapper gets $0.59 an hour. A concrete spreader gets $0.59 an hour and an asphalt spreader gets $0.65 an hour. Evidently it depends on what you are spreading around.

ALLERGIC IRRITABILITY IN RHEUMATIC AND NEPHRITIC PATIENTS

Some experimental evidence indicates that focal infections, especially with hemolytic streptococci, may alter nonspecific allergic reactivity. Because of the possible role of focal infection in both rheumatic fever and acute hemorrhagic nephritis, Schultz [1] has investigated the nonspecific cutaneous reactivity of patients with these diseases to such simple foreign proteins as rabbit serum and has compared this reactivity with the response of these patients to streptococcus nucleoprotein and tuberculin. On a given day the following materials were injected intracutaneously in different areas on the volar surface of the forearms, the respective test dose indicated being diluted to 0.1 cc. with physiologic solution of sodium chloride:

1. Hemolytic streptococcus nucleoprotein (strain Q33) 0.001 mg., prepared by the method described by Lancefield.
2. Human tuberculin (O. T.) 0.05 mg.
3. Normal rabbit serum 0.05 cc.

The reactions to nucleoprotein and tuberculin were recorded after twenty-four and forty-eight hours. There was no correlation apparent between the presence of carditis or arthritis, the degree of fever or the age of the patient and the development of secondary reactions to rabbit serum. In nephritis it is impossible with the data obtained to dissociate the two factors of focal infection and the stage of the disease, for all patients in the acute hemorrhagic stage who were tested had also suffered recent focal infections. It was concluded, however, that increased allergic irritability, as demonstrated by the development of secondary reactions following the intracutaneous injection of small amounts of rabbit serum, occurred more frequently in patients with rheumatic fever or Bright's disease than in controls. Furthermore, the incidence of this increased allergic irritability was greater in individuals who had had recent focal infections. Correlation between the presence of hypersensitivity to hemolytic streptococcus nucleoprotein or tuberculin and increased allergic irritability could be established only to the extent that secondary reactions to rabbit serum were not observed among those who had not recently experienced a focal infection in the absence of hypersensitivity to both nucleoprotein and tuberculin. Further evidence is thus provided, Schultz believes, that alterations in tissue reactivity are associated with both the rheumatic and the nephritic states.

1. Schultz, Mark P.: Allergic Irritability in Rheumatic and Nephritic Patients, Pub. Health Rep. **54**: 1273 (July 14) 1939.

THE VITAMIN B COMPLEX UNFOLDS

With increasing knowledge regarding the chemistry of the constituents of the vitamin B complex, the isolation and characterization of still other components is facilitated. The list of indispensable dietary factors included in the vitamin B group has been enumerated by Nelson.[1] It is still uncertain whether all of these are specific entities, but several have been isolated in crystalline form and a few have been synthesized. It is known that man requires thiamin and nicotinic acid, and recently evidence has been secured [2] that riboflavin is indispensable in human nutrition. The rat does not require nicotinic acid [3] but develops a characteristic dermatitis in the absence of vitamin B_6, which is known as the rat acrodynia factor. The latter material has been obtained in crystalline form and also has been synthesized, and a recent report [4] indicates that it, like nicotinic acid, possesses a structural relationship to pyridine. The chick develops a dermatosis when restricted to a heated ration or when the so-called filtrate factor or antidermatosis factor is absent. This condition does not improve when nicotinic acid is added to the feed. Wooley and his co-workers [5] have shown that this filtrate factor (part of the vitamin B complex) is chemically similar to pantothenic acid, a compound widely distributed in natural foods and consisting of an unidentified hydroxyacid and β-alanine.[6] The demonstration by Jukes [7] that the calcium salt of pantothenic acid is highly effective in curing chick dermatosis would seem to bring the identification of still another part of the water soluble B group of vitamins to the verge of completion, awaiting only the final determination of the structure of pantothenic acid.

1. Nelson, E. M.: The Components of the Vitamin B Complex, J. A. M. A. **110**: 645 (Feb. 26) 1938.
2. Sebrell, W. H., and Butler, R. E.: Pub. Health Rep. **53**: 2282 (Dec. 30) 1938.
3. Birch, T. W.: J. Nutrition **17**: 281 (March) 1939.
4. Harris, S. A., and Folkers, Karl: Science **89**: 347 (April 14) 1939.
5. Wooley, D. W.; Waisman, H. A., and Elvehjem, C. A.: J. Am. Chem. Soc. **61**: 977 (April) 1939.
6. Williams, R. J.; Weinstock, H. H., Jr.; Rohrmann, E.; Truesdail, J. H.; Mitchell, H. K., and Meyer, C. E.: J. Am. Chem. Soc. **61**: 454 (Feb.) 1939.
7. Jukes, T. L.: J. Am. Chem. Soc. **61**: 945 (April) 1939.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Changes in Health Officers.—Dr. David B. Snelling, Tuscumbia, formerly assistant to the health officer of Colbert County, has been appointed health officer of Choctaw County. He succeeds Dr. Herbert A. McClure, Butler, who took over a similar position in Lamar County.

Regional Meeting.—The Northwestern Division of the Alabama State Medical Association will meet in Tuscumbia September 14, with the following speakers, among others: Drs. Chalmers H. Moore, Birmingham, "Diagnosis of Brain Tumors"; Thomas J. Payne Jr., Jasper, "Indications, Preparation and Administration of Blood Transfusions," and Raymond R. Callaway, Birmingham, "Infections of the Kidney."

CALIFORNIA

Society News.—At a meeting of the section on medicine and pediatrics of the San Francisco County Medical Society, August 1, Dr. Ernest G. Lion discussed "Types of Insomnia and Their Treatment." The section on surgery was addressed August 15 by Drs. Nelson J. Howard on "Hormonal Influence on the Normal and Abnormal Breast"; Leo Eloesser, "Results of Treatment of Carcinoma of the Breast by Preoperative Radiation and Operation," and Leo H. Garland, "Use of Radiation Therapy in Carcinoma of the Breast." At a meeting August 29 the section on urology will be addressed by Drs. Charles P. Mathe on persistent cystitis associated with vesical fistulas and osteomyelitis of the pelvis and Edward A. Levin, "Dermatologic Lesions of the Male Genitalia."——A recent meeting of the Kern County Medical Society was addressed in Bakersfield by Dr. William T. Grant, Los Angeles, on "Surgical Treatment of Epilepsy."

COLORADO

Dr. Webb Awarded Trudeau Medal.—Dr. Gerald B. Webb, Colorado Springs, research director, Colorado Foundation for Research in Tuberculosis, received the Trudeau Medal of the National Tuberculosis Association during the annual meeting in Boston June 26-29. The award was made in recognition of Dr. Webb's attempts "to produce specific immunity against tuberculosis by the inoculation of animals with very minute numbers of tubercle bacilli." Dr. Webb received his degree in medicine from the Denver College of Medicine in 1896. He is consultant to the Methodist, Sunnyrest and Glockner sanatoriums and chief of staff at the Union Printers Home. He was president of the National Tuberculosis Association in 1920 and of the American Clinical and Climatological Association, 1929-1930, and has been delegate to several international congresses on tuberculosis. During the World War he was senior tuberculosis consultant with the American Expeditionary Forces.

GEORGIA

Changes in Health Officers.—Dr. Paul M. Golley, Chapel Hill, N. C., has been chosen health commissioner of Walker and Catoosa counties succeeding Dr. Richard C. Shepard, who resigned to enter private practice in Lafayette.——Dr. Stuart P. Vandiviere, Franklin, N. C., has been placed in charge of the Baldwin County health department.

Chattahoochee Valley Medical Meeting.—Dr. Marye Y. Dabney, Birmingham, Ala., was chosen president of the Chattahoochee Valley Medical Association at its thirty-ninth annual session at Radium Springs, Albany, July 11-13. Among the speakers on the program were:

Dr. William G. Harrison Jr., Birmingham, Relationship of the Physiology of Heart Failure to Treatment.
Dr. Lincoln Sydnor Laffitte, Jacksonville, Fla., Quinidine in Some Manifestations of Heart Diseases.
Dr. Joseph H. Boland, Atlanta, Some Orthopedic Aspects of Chronic Arthritis.
Dr. James R. Garber, Birmingham, The Obstetrical Significance of the New Born at Birth.
Dr. Thomas E. Buckman, Jacksonville, Macrocytic Anemia in Early Life.
Dr. James M. Mason, Birmingham, Cirsoid Aneurysm of the Scalp.

Dr. Mercer S. Davie, Dothan, president, Medical Association of the State of Alabama, delivered the W. J. Love Memorial Address on "American Medicine."

ILLINOIS

Mortality Trends in Illinois Since 1925.—The state department of health has issued a study of mortality trends from 1925 to 1939. The general death rate for 1925 was 11.5 per thousand of population and for 1938 it was 10.7. Infant mortality has steadily declined: in 1927 it was 64 per thousand live births and in 1938 it was 41. Deaths of mothers declined from 5.5 per thousand births in 1925 to 3.1 in 1938. Heart disease, cancer and diabetes have increased, but there are more persons in the population of an age to suffer these diseases. The rates from heart disease in 1925 and in 1938 were 186.9 and 313.5 per hundred thousand, respectively. Most of the increase occurred among persons of the higher age levels. Deaths from cancer rose, a rate of 102.2 per hundred thousand in 1925 to a rate of 136.4 in 1938. Diabetes increased from 19.7 to 27.6 per hundred thousand of population.

Chicago

Capps Prize Announcement.—The Institute of Medicine of Chicago offers again the Joseph A. Capps Prize of $400 for the most meritorious investigation in medicine or in the specialties of medicine. Competition is open to graduates of medical schools in Chicago who have completed an internship or a year of laboratory work in 1937 or thereafter. The investigation may also be in the fundamental sciences provided the work has a definite bearing on a medical problem. Manuscripts must be submitted to the secretary of the institute, 86 East Randolph Street, Chicago, not later than December 31.

Course in Hospital Administration.—A survey course for persons actively engaged in the administration of hospitals will be offered evenings at University College, University of Chicago, during the autumn and winter, in cooperation with the American College of Hospital Administrators. Among the lecturers will be: Drs. Robin C. Buerki, president of the college of hospital administrators; Bert W. Caldwell, executive secretary, American Hospital Association; Malcolm T. MacEachern, associate director, American College of Surgeons, and Herman Smith, medical superintendent of Michael Reese Hospital.

INDIANA

Personal.—Dr. George W. Bowman, Indianapolis, has been appointed state director for venereal disease control in the state health department, according to the Indianapolis *Star* August 5. He succeeds Dr. Wendell C. Kelly, who resigned to become associated with Eli Lilly & Co.——Dr. John D. Van Nuys, Indianapolis, has been named director of admissions at the Indiana University Medical Center, Indianapolis, a position created to centralize admissions to the various units of the center, according to an announcement.

IOWA

Faculty Changes at the University.—Dr. William Malamud, professor of psychiatry at the State University of Iowa College of Medicine, Iowa City, has resigned to become clinical director and director of research at the Worcester State Hospital, Worcester, Mass. Dr. Alson E. Braley, formerly instructor in ophthalmology, has been appointed assistant professor of ophthalmology at Wayne University College of Medicine, Detroit. The following faculty promotions have also been announced:

Dr. Wilbur R. Miller, to be associate professor of psychiatry.
Dr. Olan R. Hyndman, associate professor of surgery.
Dr. John W. Dulin, assistant professor of surgery.
Dr. Jacques S. Gottlieb, assistant professor of psychiatry.
Dr. Adolph L. Sahs, assistant professor of neurology.
Titus C. Evans, Ph.D., research assistant professor of radiology.

KANSAS

Physicians in Civic Posts.—Dr. Harry Lutz, Augusta, was recently elected president of the Augusta Board of Education. Two other physicians are in civic posts: Dr. Samuel N. Mallison is president of the Augusta Chamber of Commerce and Dr. Fred A. Garvin is mayor.

Changes in Health Officers.—Dr. Herbert R. Schmidt, Newton, has been appointed health officer of Harvey County to fill the unexpired term of the late Dr. William F. Schroeder. ——Dr. Adelbert R. Chambers, Iola, has been appointed health officer of Allen County, it is reported.——Dr. Howard F. Craig, Protection, has recently been appointed health officer of Comanche County.

Society News.—The Golden Belt Medical Society was addressed in Manhattan July 6 by Drs. Bernard W. Carey Jr., Detroit, on "Sulfapyridine in the Treatment of Pneumonia" and Charles C. Dennie, Kansas City, Mo., "Skin Infection in

Children." —— The Central Kansas Medical Society was addressed in Ellsworth recently by Drs. James A. Wheeler, Newton, on "Study of Maturation and Its Clinical Application" and Claude J. Hunt, Kansas City, Mo., "Surgical Treatment of Benign and Malignant Lesions of the Stomach." Dr. Leroy A. Calkins, Kansas City, Mo., showed a motion picture on "Normal Obstetrical Procedures."

KENTUCKY

Pediatric Conference.—A pediatric conference will be held in conjunction with the annual session of the Kentucky State Medical Association in Bowling Green September 11. Speakers at a morning session will be: Drs. Richard G. Elliott II, Lexington, on "Bacillary Dysentery in Infancy and Childhood"; William Clark Bailey, Harlan, "Excessive Infant Feeding"; Jacob J. Glaboff, Louisville, "Lead Poisoning in Children" and William K. Keller, Louisville, "Practical Aspects of Children's Problems." In the afternoon Dr. Philip F. Barbour, Louisville, will conduct a clinic and Dr. James H. Pritchett, Louisville, a round table conference on pneumonia.

MAINE

State Medical Election.—Dr. Thomas A. Foster, Portland, was chosen president-elect of the Maine Medical Association at the recent annnal meeting at Poland Spring and Dr. George L. Pratt, Farmington, was installed as president. Fifty year medals were presented to Drs. Charles B. Sylvester and Gustav A. Pudor, Portland; Bernard A. Bailey, Wiscasset; Henry I. Durgin, South Eliot, and Gilbert M. Elliott, Brunswick.

MARYLAND

Dr. Rowland Retires as Dean. — Dr. James Marshall Hanna Rowland, since 1916 dean of the University of Maryland School of Medicine, Baltimore, retired with the title of dean emeritus at the end of the academic year, according to *Science*. A native of Maryland, Dr. Rowland graduated at Baltimore Medical College in 1892 and was professor of obstetrics there from 1900 to 1913. He occupied a similar position at the University of Maryland School of Medicine from 1920 to 1937 in addition to the deanship. He was president of the Medical and Chirurgical Faculty of Maryland in 1930-1931.

Grants to Johns Hopkins.—Within the last few months the Rockefeller Foundation has awarded two grants of $350,000 and $90,000 each to Johns Hopkins University School of Medicine, Baltimore. The larger is to be used over a ten year period to equip and maintain a department of preventive medicine while the second grant will be utilized as a research fund to be distributed among departments and to projects which stand in greatest need of aid in carrying out research programs, according to the university *Gazette*. A grant of $2,000 was given by the Finney-Howell Research Foundation to advance biologic experiments now under way and which will be expanded with the completion of a new atom-smashing machine. Ultimately the school of medicine and Johns Hopkins Hospital will receive more than $1,000,000 through a bequest by the late Victor Morawetz. The bulk of Mr. Morawetz's estate at the expiration of life interests held by immediate relatives is to be divided among three agencies: the Boys' Club of New York, Medical Society of South Carolina and Johns Hopkins.

MICHIGAN

New Health Unit.—A new full time health department has been organized in St. Joseph County. Dr. Lawrence A. Berg, Menominee, former director of the Menominee County health department, has been placed in charge of the new unit with headquarters at Centerville.

Collection of Obsolete Instruments.—The Detroit Historical Museum is attempting to collect surgical, dental and pharmacy instruments now considered obsolete, according to the Detroit *Medical News*. Donations will be appreciated and full credit will be allowed in the display.

Poliomyelitis Report.—Eleven new cases of poliomyelitis reported during the twenty-four hours ended Saturday morning, August 19, brought the total in Detroit since January 1 to 219. Health officials reported the wave has apparently "leveled off," with an average of ten cases a day. At the time of the report there were eighty-six active cases in the city. There had been eight deaths. It was expected that a decision would be reached by August 31 concerning the opening of schools, scheduled for September 6. Outside Detroit, thirty-one cases had been reported in the state up to August 18.

Changes in Foundation Staff. — Five special consultants have been appointed for the W. K. Kellogg Foundation, Battle Creek, newspapers reported July 18. They are:

Dr. Cyrus C. Sturgis, professor of internal medicine and chairman of the department, University of Michigan Medical School, Ann Arbor.
Dr. John E. Gordon, professor of preventive medicine and epidemiology, Harvard University Medical School, Boston.
Dr. Grant Fleming, dean of the faculty, Strathcona professor and head of the department of public health and preventive medicine, McGill University Faculty of Medicine, Montreal.
Dr. William S. Sadler, Chicago.
Dr. Wilson G. Smillie, professor of public health and preventive medicine, Cornell University Medical College, New York.

It was also reported that five other physicians had joined the staff of the foundation under fellowships: Drs. Edwin H. Place, Midland; Gennaro Basilicato, Blairstown, N. J.; Lorin E. Kerr, Toledo, Ohio; Kenneth W. Navin, Ann Arbor, and James M. Mather, Toronto, Ont. They will work in the seven counties covered by the community health project sponsored by the foundation, it was stated.

MINNESOTA

Northern Minnesota Meeting. — The annual meeting of the Northern Minnesota Medical Association will be held in Detroit Lakes September 8-9. Speakers on the first day's program will include:

Dr. Joel C. Swanson, Fargo, N. D., Use of Metal in Fractures.
Dr. Gordon R. Kamman, St. Paul, Painful Conditions About the Head and Face.
Dr. Chester L. Oppegaard, Crookston, Nasal Obstruction: Is It Allergic?
Dr. Leo G. Rigler, Minneapolis, Roentgen Diagnosis in Acute Abdominal Conditions.
Dr. Edward A. Meyerding, St. Paul, The Annual Session of the American Medical Association.
Dr. Thomas O. Young, Duluth, Infectious Diseases of the Thyroid.

Saturday's program will be a clinical pathologic conference under the direction of Dr. Edward L. Tuohy, Duluth. Dr. Frank J. Hirschboeck, Duluth, will be toastmaster at a banquet Friday evening at which State Senator A. O. Sletvold, Detroit Lakes, will speak on "The Trend of the Times."

MISSISSIPPI

Society News.—At a meeting of the Coast Counties Medical Society in Pascagoula recently Dr. James H. Dodson, Mobile, Ala., spoke on "The Anatomical Structures Dealt with in Treating Anorectal Diseases." —— The South Mississippi Medical Society was addressed in Hattiesburg recently by Drs. Idys Mims Gage and Eugene H. Countiss, both of New Orleans, on "Acute Traumatic Subcutaneous Injury of Abdominal Viscera" and "Chronic Cervicitis" respectively. Dr. Nollie C. Felts, Hattiesburg, reported a case of abdominal pregnancy. ——Drs. James J. Pittman, Tylertown, discussed dysenteries in children before the Tri-County Medical Society recently; Oscar W. Bethea, New Orleans, bronchiectasis, and Arthur Neal Owens, New Orleans, care of wounds.

MISSOURI

Society News.—At a meeting of the Cape Girardeau County Medical Society in Cape Girardeau recently Drs. Charles W. Duden, St. Louis, discussed "Irritable Colon" and Warren R. Rainey, St. Louis, "Early Diagnosis of Anorectal Diseases." ——The Six County Medical Society was addressed in Sikeston recently by Drs. Garold V. Stryker and Carliss Malone Stroud, both of St. Louis, on common diseases of the skin and hay fever, respectively.

Award of Merit Goes to Neuropsychiatrist. — The Award of Merit of the St. Louis Medical Society will be presented to Dr. William W. Graves, professor and director of the department of neuropsychiatry, St. Louis University School of Medicine, in the fall. Dr. Graves was selected for the award "in consideration of the results of his studies on inherited variations in relation to the problems of the human constitution." According to the report, Dr. Graves was the first to classify shoulder blades into types and to apply that classification to determining potentialities for health and disease. Dr. Graves graduated at the St. Louis University College of Physicians and Surgeons in 1888. He has been on the faculty of St. Louis University School of Medicine since 1905, becoming professor of nervous and mental diseases in 1914 and director of the department in 1925.

NEW YORK

Personal.—Dr. Harry J. Brayton has resigned as superintendent of the Onondaga County Sanatorium, Syracuse. He has held the position for more than twenty years.——Dr. George A. Marsden, Oswego, has been appointed city health officer to succeed the late Dr. James E. Mansfield.

Course on Dietetics.—The council committee on public health and education of the Medical Society of the State of New York announces that a four day institute on dietetics will be held in the fall at Syracuse, with the cooperation of the state department of health, the Syracuse University College of Medicine and College of Home Economics and the New York Dietetic Association. Each topic on the program will be discussed by a physician and a dietitian. Following a general consideration of diet, the topics will be: diet in pregnancy and lactation, infancy and childhood, deficiency diseases, cardiac disease and arthritis, metabolism (diabetes, obesity and undernutrition), diseases of the gastrointestinal tract, renal diseases, allergy, surgery, food fads and fallacies. A registration fee of $10 will be charged. Further information may be obtained from Dr. Thomas P. Farmer, chairman of the committee, 206 Sedgwick Drive, Syracuse.

OHIO

Dr. Zuck Heads Brush Foundation.—Dr. Theodore T. Zuck, a member of the staff of the Brush Foundation, Cleveland, since its establishment in 1929, has been appointed director to succeed the late Dr. T. Wingate Todd. Dr. Zuck graduated from Western Reserve University School of Medicine, Cleveland, in 1928.

Personal.—Dr. Will Maurice Hoyt, Hillsboro, has been appointed a member of the State Medical Board of Ohio to succeed Dr. Floyd S. Meck, Cleveland, whose term expired. ——Dr. Kenneth Earl Shaweker, Dover, was the guest of honor at an outing given by the Tuscarawas County Medical Society recently, marking his retirement after twenty-five years of practice.

Society News.—Dr. Daniel G. Caudy, Zanesville, discussed sulfapyridine therapy at a meeting of the Perry County Medical Society, New Lexington, July 20.——Dr. Harve M. Clodfelter, Columbus, spoke on "Arterial Diseases" before the Washington County Medical Society, Marietta, July 12.——Dr. Walter M. Simpson, Dayton, will address the Mahoning County Medical Society, Youngstown, September 19 on "Artificial Fever Therapy."

OKLAHOMA

Health Officers Appointed.—Appointment of the following county health officers has recently been announced:

Dr. Francis Polk Fry Jr., Frederick, of Tillman County.
Dr. James C. Rumley, Stigler, Haskell County.
Dr. John I. Derr, Waurika, Jefferson County.
Dr. Simon S. Garrett, Duncan, Stephens County.
Dr. Lloyd T. Lancaster, Cherokee, Alfalfa County.
Dr. Loren V. Baker, Elk City, Beckham County.
Dr. William F. Griffin, Watonga, Blaine County.
Dr. Robert K. McIntosh Jr., Tahlequah, Cherokee County.
Dr. Joshua P. Beam, Arnett, Ellis County.
Dr. William S. Cary, Reydon, Roger Mills County.
Dr. Walter R. Joblin, Porter, Wagner County.
Dr. Hugh H. Monroe, Lindsay, Garvin County.
Dr. Ferdinand R. Hassler, Jr., Seminole, Pottawatomie County.

OREGON

State Medical Meeting at Gearhart.—The Oregon State Medical Society will hold its sixty-fifth annual meeting in Gearhart September 6-9 under the presidency of Dr. Charles E. Sears, Portland. Guest speakers, who will make three addresses each and lead round table discussions, will be:

Dr. Clifford J. Barborka, Chicago, Recent Advances in Nutrition; Management and Treatment of Obesity; Diagnosis and Treatment of Peptic Ulcer.
Dr. Otto H. Schwarz, St. Louis, The Possible Causes, Prophylaxis and Treatment of the Toxemias of Pregnancy; Care of Postpartum Infections; Management of Breech Presentations.
Dr. Nathan A. Womack, St. Louis, Jaundice, Its Surgical Significance; Silent Gallstone and Symptoms of Cholecystitis; Cancer of the Breast.
Dr. Alexis F. Hartmann, St. Louis, Infant Feeding; Present Status of Chemotherapy with Sulfanilamide and Derivatives; Some Practical Aspects of Parenteral Fluid Administration.

Among Oregon physicians who will take part in the program are:

Dr. Frederick A. Kiehle, Portland, Opacities of the Cornea and Their Treatment.
Dr. Henry H. Dixon, Portland, Practical Therapy for Anxiety Tension States.
Dr. Max W. Hemingway, Bend, Coronary Occlusion as Encountered in General Practice.
Dr. Frank Perlman, Portland, Practical Approach to Management of Allergic Skin Disorders.
Dr. Clarence I. Drummond, Medford, Edema of the Head and Neck: A Symptom in Calcified Pericardium.
Dr. Karl H. Martzloff, Portland, Cancer of the Fallopian Tubes.

The thirteenth annual golf tournament will be held Saturday September 9 on the Gearhart course. The annual banquet will be Friday evening September 8.

PENNSYLVANIA

Society News.—Dr. Walter A. Bloedorn, Washington, D. C., addressed the Cambria County Medical Society, Johnstown, July 13 on "Practical Aspects, Diagnosis and Treatment of Heart Disease."——Dr. Harrison S. Martland, chief medical examiner of Essex County, Newark, N. J., was guest speaker at the annual meeting of the Lehigh Valley Medical Association at the Pocono Manor Inn, July 20. His subject was "Dr. Watson and Mr. Sherlock Holmes." Dr. Martin S. Kleckner, Allentown, delivered his presidential address on "Overspecialization in Medicine."

District Meeting.—The Eleventh Councilor District of the Medical Society of the State of Pennsylvania held a meeting at Uniontown July 19. Speakers on the morning program were: Drs. Walter M. Bortz, Greensburg, on pneumonia; David H. Ruben, Washington, "Pertinent Facts in Present Day Urology"; Elliott B. Edie, Uniontown, "The Physician as a Patient"; Leo W. Hornick, Johnstown, "Skull Fractures," and James E. Van Gilder, Uniontown, "Diabetes—the Family Physician's Problem." In the afternoon Dr. Eugene R. Whitmore, Washington, D. C., spoke on "Chronic Cystic Mastitis and Carcinoma of the Breast"; Drs. David W. Thomas, Lock Haven, president of the state society, and Walter F. Donaldson, Pittsburgh, secretary, discussed medical activities. A fifty year testimonial was presented to Dr. William L. Dodd, Amity. Dr. Donaldson, Dr. Thomas and Mrs. Donaldson, who is president of the state auxiliary, addressed a meeting of the woman's auxiliaries of the district.

Philadelphia

Dr. Martin Appointed Professor at Jefferson.—Dr. James R. Martin, chief surgeon at the State Hospital for Crippled Children, Elizabethtown, and director of the state program for crippled children under the Social Security Act, has been appointed James Edwards professor of orthopedic surgery at Jefferson Medical College. He succeeds Dr. J. Torrance Rugh, who has resigned after holding the chair since 1918 and who will become professor emeritus. Dr. Martin graduated from Jefferson in 1910 and was continuously associated with the college and with Jefferson Hospital until 1938, when he accepted the state appointment. He was assistant professor of orthopedic surgery at the medical school and chief of the hospital's outpatient orthopedic clinic at that time.

RHODE ISLAND

Hospital Superintendents Appointed.—Dr. Charles P. Fitzpatrick, clinical director of Butler Hospital, Providence, has been appointed superintendent of the State Hospital for Mental Diseases at Howard, succeeding Dr. Seth F. H. Howes, resigned.——Dr. Ubaldo E. Zambarano, assistant to the director of the Providence Tuberculosis League for the past ten years, has been appointed superintendent of the State Sanatorium, Wallum Lake. He succeeds Dr. Hilary J. Connor.

SOUTH CAROLINA

District Meeting.—The Second District Medical Society met in Aiken July 27 with the following speakers: Drs. Austin T. Moore, Columbia, on "Basic Principles in Fracture Treatment"; Walter E. Daniel, Charlotte, N. C., "A Comparison of Sulfanilamide, Sulfanyl-Sulfanilamide and Sulfapyridine" and William A. Mulherin, Augusta, "Preventive Pediatrics."

UTAH

Personal.—Dr. William M. McKay, Salt Lake City, director of the division of communicable disease control of the state board of health, has been made acting state health commissioner to serve for two years while Dr. John L. Jones, the health commissioner, is conducting a survey of occupational disease in the state.——Dr. Lewis F. Seapy, San Francisco, has been appointed medical superintendent of a new Utah Tuberculosis Sanatorium at Ogden.

VIRGINIA

Society News.—Dr. Wellford C. Reed, Richmond, addressed the Dickenson-Buchanan Counties Medical Society, Grundy, recently on "Use of Digitalis and Quinidine in Heart Conditions." Dr. John P. Williams, Richmond, showed a film on the heart.——Dr. Hugh H. Trout, Roanoke, president-elect of the Medical Society of Virginia, addressed the Patrick Henry Medical Society at its quarterly meeting in Martinsville July 14 on the work of the state society and the American Medical Association.

WISCONSIN

Changes in Medical Board.—Dr. Harold W. Shutter, Milwaukee, has been appointed to the state board of medical examiners to succeed Dr. Henry J. Gramling, Milwaukee, and Dr. Jessie P. Allen, Beloit, to succeed Dr. Henry W. Howe, Racine. A special meeting of the board will be held September 14 to elect a new secretary and to consider applicants for licenses by reciprocity.

Lectures on Viruses.—Dr. Christopher H. Andrewes, a member of the British Medical Research Council, gave a series of lectures at the University of Wisconsin Medical School, Madison, July 25-28, under the auspices of the Wisconsin Alumni Research Foundation. His subjects were: "The Nature and Properties of Viruses," "Viruses in Relation to New Growths," "Recent Work in Influenza" and "Immunity in Influenza and Other Virus Infections."

GENERAL

Another Million for Infantile Paralysis Fund.—The Committee for the Celebration of the President's Birthday reported August 10 to President Roosevelt that the 1939 drive for funds to aid in fighting infantile paralysis netted $1,329,100. The National Foundation for Infantile Paralysis, Inc., organized this year on a nationwide basis, will administer the fund, half of which is to be used for research and the remaining half to be sent to local chapters. The largest part of the proceeds of the drive came from the birthday balls and other events held January 30. The "March of Dimes" campaign raised $217,602.28 and other contributions amounted to $96,971.58.

Clifford Beers Resigns from Mental Hygiene Committee.—Mr. Clifford W. Beers, New York, founder of the mental hygiene movement, has resigned as secretary of the National Committee for Mental Hygiene after more than thirty years of service. He will continue his work as secretary of the American Foundation for Mental Hygiene and the International Committee for Mental Hygiene. The National Committee announces the appointment of Dr. Milton E. Kirkpatrick, New York, recently director of a child guidance center at Lansing, Mich., as director of the division on community clinics to succeed Dr. George S. Stevenson. Dr. Stevenson recently became medical director of the national organization.

Special Society Elections.—Dr. Adrian V. S. Lambert, New York, was elected president of the American Association of Thoracic Surgery at its annual meeting in Los Angeles July 5-7. Dr. Fraser B. Gurd, Montreal, Canada, was elected vice president; Dr. Richard H. Meade Jr., Philadelphia, secretary, and Dr. Isaac A. Bigger, Richmond, Va., treasurer. —Dr. Henry D. Chadwick, Waltham, Mass., was elected president of the National Tuberculosis Association at the recent annual meeting in Boston. Drs. Paul H. Ringer, Asheville, N. C., and David O. N. Lindberg, Decatur, Ill., were elected vice presidents and Dr. Charles J. Hatfield, Philadelphia, was reelected secretary. The 1940 meeting will be held in Cleveland during the week of June 3.

Cancer Congress in Atlantic City.—The Third International Cancer Congress will be held in Atlantic City, N. J., September 11-15, at the Haddon Hall Hotel under the presidency of Dr. Francis Carter Wood, New York. Sections of the congress and their chairmen are as follows:

Biophysics, Gioacchino Failla, D.Sc., New York.
Genetics, Clarence C. Little, Sc.D., Bar Harbor, Maine.
Experimental pathology, Dr. William H. Woglom, New York.
General pathology, Dr. Milton C. Winternitz, New Haven, Conn.
Surgery, Dr. Frank H. Lahey, Boston.
Diagnostic roentgenology, Dr. John D. Camp, Rochester, Minn.
Therapeutic radiology, Dr. Ursus V. Portmann, Cleveland.
Statistics and education, Dr. Burton T. Simpson, Buffalo.
General section, Dr. Francis Carter Wood, New York.

Each evening lectures will be presented surveying some special field. Included in these lectures will be one by Dr. Thomas Parran, Surgeon General, U. S. Public Health Service, Washington, D. C., on "Cancer and the Public Health" and one by Dr. James Ewing, New York, on "Cancer, Present and Future."

Sanatorium Association Changes Name.—The American Sanatorium Association at its annual meeting in Boston in June widened its scope and functions and changed its name to the American Trudeau Society. The American Sanatorium Association was organized in 1905 by physicians associated with sanatoriums. The reorganization provides for inclusion of many physicians outside of sanatoriums who have active interest in tuberculosis and other diseases of the chest. The society will continue to conduct its programs in conjunction with those of the National Tuberculosis Association and will assume responsibility for the clinical and pathologic programs of the latter, according to an announcement. Dr. James Burns Amberson Jr., New York, is the president of the American Trudeau Society; Dr. Lewis J. Moorman, Oklahoma City, president-elect; Dr. John B. Barnwell, Ann Arbor, Mich., vice president, and Dr. Benjamin L. Brock, Waverly Hills, Ky., secretary.

Changes in Status of Licensure.—The Alaska Board of Medical Examiners recently reported the following action:

Dr. Morris P. Kaufman, whose present address is Simnasho, Ore., licensed revoked June 2, following revocation of his California license on a charge of narcotic addiction. His Alaska license was granted by reciprocity with California.

The New York State Board of Medical Examiners has reported the following actions in recent months:

Dr. Alexander Neshamkin, New York, license reinstated; it was suspended May 20, 1938.
Dr. Peter H. Friedman, New York, license reinstated; it was suspended July 29, 1938.
Dr. Victor Laub Gross, formerly of New York, license reinstated; it was suspended July 29, 1938.
Dr. Alexander Reiss, New York, license reinstated; it was suspended July 29, 1938.
Dr. Joseph N. Zlinkoff, New York, license reinstated after a suspension.
Dr. Henry J. Schwartz, New York, license suspended for nine months from January 27, on the ground of an attempted abortion.
Dr. Solomon Netzer, Brooklyn, license suspended for one year from February 24, based on conviction of conspiracy.
Dr. Samuel Reich, Brooklyn, license suspended for two years from January 27, on the basis of fraud and deceit.
Dr. Herman Renkoff, now of Crestview, Fla.; license suspended for six months from January 27, on his conviction of the crimes of conspiracy and petit larceny.
Dr. John J. Van Horn, New York, license suspended for one year from March 17 for fraud and deceit in that he aided and abetted the practice of an unlicensed practitioner.
Dr. Leon Luria, New York, license suspended for one year from April 21 for fraud and deceit in the practice of medicine.

Fraudulent Salesman—Uniforms.—Physicians are warned to watch for one Ward Osborne, who claims to represent the Angelica Jacket Company, manufacturers of uniforms. The firm reports that complaints have been received from Iowa, Wisconsin and Illinois and that the man is not and never has been on its sales staff. Osborne carries samples and a catalogue from the Angelica firm. He demands a down payment and also says that if full payment is made the firm will pay the postage. The Angelica company points out that its representatives do not sell to individuals and do not receive down payments on merchandise. Osborne is described as being about 6 feet tall, weighing about 180 pounds, having brown eyes and dark complexion and being well dressed.

Railway Surgeons' Meeting.—The fiftieth annual meeting of the American Association of Railway Surgeons will be held at the Palmer House, Chicago, September 11-13, under the presidency of Dr. Mathew A. Tinley, Council Bluffs, Iowa. Among the speakers will be:

Dr. John R. Nilsson, Omaha, Open Reduction of Severe Fractures.
Dr. Sanford R. Gifford, Chicago, Eye Injuries and Their Management.
Dr. Roland M. Klemme, St. Louis, Trigeminal Neuralgia, Accurate Differential Section with the Preservation of the Ophthalmic Branch.
Dr. George W. Hall, Chicago, Routine Neurologic Examination.
Dr. Ralph M. Dodson, Portland, Ore., Fractures of Transverse Processes of Lumbar Vertebrae.
Dr. John H. Alexander, Pittsburgh, Pathologic Fractures in Relation to Industry.
Dr. Gordon B. Myers, Detroit, Prediction of Coronary Accidents.
Dr. Harry V. Spaulding, New York, Injuries to the Semilunar Cartilage.

Association of Obstetricians and Gynecologists.—The fifty-second annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons will be held at The Homestead, Hot Springs, Va., September 7-9 under the presidency of Dr. James E. King, Buffalo. Among the speakers on the program will be:

Dr. Walter B. Mount, Montclair, N. J., An Electric Timer: An Aid in Counting the Fetal Heart in the Second Stage of Labor and in Spacing and Timing Forceps Tractions.
Dr. James K. Quigley, Rochester, N. Y., Maternal Welfare Work—What Are Its Fruits?
Dr. Herbert E. Schmitz, Chicago, Hermaphroditism.
Dr. James R. Goodall, Montreal, Canada, A Study of Uterine Defense Mechanisms.
Dr. William Seaman Bainbridge, New York, The Inter-Relationship of Surgical Conditions of the Pelvic and Abdominal Viscera.
Dr. Robert D. Mussey, Rochester, Minn., Report of an Investigation of the Clinical Relationship of Pyelitis of Pregnancy to Preeclamptic Toxemia.
Dr. Joseph W. O'Connor, Worcester, Mass., Spontaneous Rupture of the Uterus.

The association's Foundation Prize will be awarded to Dr. Abraham R. Abarbanel, Bronx, N. Y., who will present his thesis on "The Therapeutic Rationale for the Use of Testos-

terone Propionate in the Immediate Treatment of Functional Uterine Bleeding." The Joseph Price Oration will be delivered Thursday evening September 7 by Prof. Paul Werner, Vienna, on "Conservative Operations per Vagina with Details of Modern Technic." At the annual banquet Friday evening September 8 the speaker will be Hon. A. Willis Robertson, Lexington, Va., congressman from the seventh Virginia district.

CANADA

Canadian Medical Election. — Dr. Duncan Graham, Toronto, was chosen president-elect of the Canadian Medical Association at the annual meeting in Montreal in June and Dr. Frank S. Patch, Montreal, was installed as president. The next meeting will be in Toronto.

Faculty Changes.—Appointments announced by the University of Manitoba Faculty of Medicine, Winnipeg, include the following: Drs. James D. Adamson, to be professor of medicine; Oliver S. Waugh, professor of surgery; James D. McQueen, professor of gynecology, and Rosslyn B. Mitchell, professor of obstetrics.——At the University of Montreal Faculty of Medicine Dr. Leon Gerin-Lajoie has been appointed professor of gynecology and Drs. Roma Amyot and Jean Saucier, professors of neurology.

FOREIGN

British Medical Election.—Sir Harold Beckwith Whitehouse, Birmingham, was chosen president of the British Medical Association at the annual meeting in Aberdeen in July and Dr. Thomas Fraser was installed as president. Sir Ernest Kaye Le Fleming, Wimborne, chairman of the council for several years, was elected a vice president. Next year's meeting will be in Birmingham.

Congress on Child Welfare.—The fourteenth session of the International Association for the Promotion of Child Welfare will be held in Rome October 9-14. There will be three sections: medical, legal and social. The topic for the medical section will be prevention of tuberculosis in susceptible children. A program may be obtained from the secretary-general, 67, avenue de la Toison d'Or, Brussels.

Society News.—The Italian National Congress of Obstetrics and Gynecology will be held in Turin October 15-18. The official topics are gynecologic symptoms of extragenital diseases and ovarian hormone treatment in obstetrics and gynecology. —— A course in balneology will be offered by the Hungarian Postgraduate Medical Education Committee in Budapest October 2-8. The program will be sent on request to the committee, Esterhazy-utca 9, Budapest VIII.

Government Services

Dr. Akin Appointed Assistant Surgeon General

Dr. Charles V. Akin, chief quarantine officer of the Port of New York since 1936, has been detailed as assistant surgeon general of the U. S. Public Health Service in charge of the division of sanitary reports and statistics. Dr. Akin, a native of Mississippi, graduated from Tulane University of Louisiana School of Medicine in 1911 and entered the Public Health Service in 1914. He has had varied service in the fields of states relations, rural sanitation, bubonic plague and foreign quarantine activities. During the World War he was in epidemiologic work in army camps.

Medicomilitary Inactive Status Training

The eleventh annual inactive status training course for medical department reservists of the U. S. Army and Navy will be held at the Mayo Foundation, Rochester, Minn., October 8-22. As in former years, special work in clinics and hospitals will be offered during the morning hours for those asking special assignments. Presentations of selected subjects in military medicine are scheduled. There will be appropriate sections or special courses for officers of the dental and veterinary corps. All medical department reservists are eligible for enrolment. Approved applicants will be enrolled on the recommendation of the surgeon of the seventh corps area or the surgeon of the ninth naval district. Applications should be made at an early date and should be forwarded through the respective reserve headquarters of the officers concerned.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 3, 1939.

The Problem of Medical Literature

In correspondence in the *Lancet* on the problem of medical literature, Prof. R. J. S. McDowell declared that the present state is chaotic and has been continued by medical writers on the one side and by medical librarians on the other. Professor McDowell supposes the case of a physician who has an idea and wants to find out what has already been done on a subject. He writes to the librarians of the Royal Society of Medicine, if he is a member. They consult the *Quarterly Cumulative Index Medicus* and the Surgeon General's Catalogue and in due course a list of some hundreds of references, in all manner of languages, arrives. Some are relevant, many are not. He tries to find out where the journals are, and if he is lucky enough to find them they will prove to be scattered over the libraries of Britain; some are already on loan and some in libraries which do not lend. Many libraries take the same journals and most have to restrict their intake to what they can afford. Having obtained a journal, which may be in Hungarian, he has to find a translator and then the paper may prove not to be relevant. And so he goes on until his enthusiasm is quenched.

Professor McDowell pleads for more coordination between libraries to make the lesser known journals more accessible. In London there are fourteen general medical libraries. There is need for an adequate medical abstracting journal, such as exists for chemistry and physiology. Mr. G. A. Lloyd, librarian to the British Postgraduate School, suggests that this work should be undertaken by some body such as the British Medical Association. "Its sister association across the water presents the profession with the most valuable bibliographic tool it has." A surgeon, Mr. Zachary Cope, describes the present state of medical literature as "disheartening" and advocates that there should be one large library where all the rarer and more expensive journals could be taken and which should work in close cooperation with all other medical libraries. It would need a special staff for preparing references and translating and be equipped for photostatic and photomicrographic reproduction. Mr. C. C. Barnard, librarian of the London School of Tropical Medicine, points out that the Library Association is compiling a list of all known medical periodicals, of which there are probably about 7,000, on specially printed cards with a place for recording the holdings of all the British scientific libraries. The next step will be to cancel redundant subscriptions and with the money saved buy other periodicals not now available. Mr. Le Fanu, librarian of the Royal College of Surgeons, says that Britain has an unrivaled wealth of medical libraries but that they are not coordinated and do not cover the whole field. In London four medical libraries have begun to cooperate and are coordinating their subscriptions. He advocates coordination in preference to establishing a central library.

Heparin in Prevention of Thrombosis

At a meeting of the Section of Surgery of the Royal Society of Medicine Dr. Gordon Murray of Toronto described his work on heparin, which he had done in collaboration with Prof. C. H. Best. Heparin was first isolated by MacLean in 1916. When struggling with some work on blood vessel anastomosis Murray found that most of his failures were due to coagulation and it was suggested to him that Best had a substance, heparin, which would prevent clotting. They then began to investigate the problem. From 100 pounds (45 Kg.) of

beef lung they isolated 1 Gm. of heparin, which is the strongest organic acid known. Much work was done before it was finally produced as a crystalline barium salt. When the superficial veins of dogs were occluded they remained patent in 90 per cent of cases if heparin was given. If a vein was grafted into an artery, thrombosis occurred in a few hours; but under heparin the grafts remained patent for from seven to ten days. A thrombus produced by inserting a foreign body at the bifurcation of the femoral artery could be successfully removed in the heparinized animal after it had remained in situ for twenty-four hours and become attached to the intima. A valve of the heart had been removed and a new valve substituted and the animal lived without a thrombus being formed.

CLINICAL APPLICATIONS

Heparin had been given by continuous intravenous drip to more than 400 patients without toxic effects. A large number of the cases were postoperative in the attempt to prevent pulmonary embolism. Major operations, such as gastrectomy, were well represented. Among these the postoperative mortality from pulmonary embolism ranged from 2 to 7 per cent, but in the heparinized subjects it was nil. All that heparin did was to prevent the formation of a clot; it did not absorb a clot already formed. Heparin had proved useful in cases of pulmonary embolism. In cases in which there had been one attack of embolism there were practically always other emboli waiting to be discharged. There was now a series of twenty-two cases of repeated pulmonary embolism, with survival under heparin, and with one possible exception there had been no further embolism. Some of the patients died from other causes and no sign of embolism was found post mortem.

Six patients with mesenteric thrombosis had been treated with heparin and four were alive and well after resection of the intestine varying from 1½ to 7 feet. The mortality of splenectomy was very high, almost always from mesenteric thrombosis, but the few patients who had been treated with heparin survived. If the coronary artery was not occluded at the beginning of an attack of coronary thrombosis, heparin might prevent occlusion.

In the discusssion the chairman, Mr. Claude Frankau, congratulated Dr. Murray on the brilliance of his work and confirmed the value of heparin in embolectomy. Other speakers reported remarkable results, but complaint was made as to the cost of heparin. Dr. Murray said that this difficulty existed also in Toronto. He was afraid that the price would not be lower until a synthetic preparation came on the market.

Hospitals in War Time

The scale on which the government is making war preparations in the hospitals can be judged by the fact that it is already committed to an expenditure of $32,000,000. At a conference of the chairmen of the London teaching hospitals Mr. Elliot, minister of health, said that in an emergency 100,000 existing beds in England and Wales would be cleared and made available for casualties. Additional beds to be introduced had been manufactured and were in hand. The work of adaptation necessary for upgrading had been settled at almost all the hospitals, in the majority of cases at government expense. More than 40,000 additional hospital beds were being provided in hutments. Group officers, appointed by the hospitals, had been at work for four months in the London sectors on the distribution among the expanding hospitals of the available medical personnel. Auxiliary nurses were being steadily recruited and trained to the number of 60,000 so far for the whole of Great Britain. Proposals on the finance of the treatment of casualties had been submitted to the hospitals. Flat rate payments per casualty would be made and regarded as interim payments subject to review. If any hospital should be so financially embarrassed that it could not provide the casualty service required of it, the government would provide such financial accommodation as might be necessary. It was agreed that the chairmen of the hospitals should draw up a memorandum in detail on the points on which they wished guidance and decisions and that after this had been submitted to the minister they would, if he so desired, meet him again.

PARIS

(From Our Regular Correspondent)

July 15, 1939.

Medicine and Publicity

In a recent conference of physicians of the Bordeaux area, Professor Mauriac discussed the problem of publicity. His position as dean of the Bordeaux faculty permits him to say what he thinks. His point of view on this serious professional problem is interesting. An important group of French physicians maintain an uncompromising attitude toward open or disguised publicity, in which certain physicians and many pharmacists subtly engaged. A considerable number of practicing physicians criticize everything that smacks of inviting attention. For example, they are opposed to having the names of the heads of the departments with their consultation hours posted at the entrance of hospitals and to the scientific collaboration of the teaching staff of faculties of medicine with manufacturing industries. Mauriac criticizes this exclusive attitude as contrary to scientific activity. In France the government does but little for laboratories. Public services are poorly endowed. Gifts and foundations are numerous, but they would not suffice to maintain research workers if a few great industrialists did not devote a large part of their profits to laboratories and the endowment of chairs and professorships.

Mauriac, however, is of the opinion that the detachment of a physician with professorial status is a guaranty of independence worth all conceivable monetary bribes. Medicine, a liberal profession, should be taught by teachers who have a liberal mind and are jealous of their freedom to the point of repulsing what menaces it. "The honor of a teacher consists in a free mind, free hands and free speech toward the student as well as toward his colleagues and administrators."

An unobnoxious form of publicity expresses itself in flooding the physician with bill-folds, printed material of a professional nature and small gifts. Mauriac is not opposed to these attentions. But there are more troublesome features. Can one, for example, without lowering professional standards, attend a purely scientific gathering, organized, however, by a thermal water organization which pays all traveling and hotel expenses, or can one accept an invitation to a hunting party when one must suspect that the ulterior motive is to enlist interest for a drug? Can one write a scientific article for an otherwise unobjectionable periodical but which is sent gratuitously to 30,000 or 40,000 physicians? What difference is there between this article which serves a commercial purpose and articles which are published by large medical journals which, after all, depend on publicity for their existence? Often the decision can be made without hesitation; for example, if the request made is intended to help the sale of a medicament or includes a check. Industrialists who need the patronage of a physician connected with a teaching institute, or the support of practicing physicians, are good psychologists and often embarrass the professional conscience. Distrust is not hostility, he said, but it is necessary to be cautious. He concluded: "If publicity has a dangerous implication, it depends on us to protect ourselves like grown boys."

Confederation of French Medical Syndicates

The council of the confederation of French medical syndicates held its annual meeting July 9. The confederation represents the large majority of French physicians, divided into

numerous local groups. The expressions of its delegates are truly representative of French medical opinion. Only professional problems of a practical nature are discussed at these meetings; for example, the necessity of defending the medical profession against undertakings of the state and against machiavellian alliances of different organizations such as mutual societies that desire medical service cheaply and wish to harness French physicians who are traditionally individualistic and independent to joint action.

The debates, therefore, of the council reflect the thought of physicians on questions affecting their profession as a whole. Special attention was given to the measures taken by social insurance companies against the medical profession. In France physicians are always paid directly by their clients even though the clients are members of a social insurance company. Patients are reimbursed by commissions composed in equal number of physicians, representatives of insurance companies and delegates of sick funds. Reimbursement is made in accordance with a minimum tariff representing, generally, half or two thirds of the fee paid to the physician. This arrangement was worked out to avoid abuses and to educate patients to the need of economy in medical matters. The extent of the contributions on the part of workers and their employers had been carefully worked out seven years ago at the time the law went into effect and equality of payment was adopted. In consequence, the sick funds have much money. The activating spirit is at bottom totalitarian and tends toward the socialization of medicine by different approaches and arrangements. These naturally encounter the vigilant opposition of the medical profession and their representatives. Such opposition, however, does not exclude cooperation. On the contrary, the medical profession recognizes that sick funds can do a great deal of good in the field of prophylaxis and hygiene. However, the syndicates wish strictly to control the organizations whose social value they appreciate. This surveillance does not suit the sick fund companies and results in friction.

Other discussions pertaining to the state concerned the large number of small provincial hospitals which are jealous of their autonomy. Their improvement and modernization is sought but no one wants to pay for it. On the other hand, the problem is recurrently rendered difficult by inherited situations and local difficulties.

The question of free dispensaries that depend on foundations or subsidies and are open to all, not only to the indigent, thereby competing with medical practice, comes up for discussion periodically as well as that of the extramedical publicity of pharmacists, the abuses of which are encouraged by the metropolitan press but which will some day have to be checked.

This year two new problems were brought before the representatives of the confederacy, that of curbing abortions and the use of the individual health book. As regards the former, the state can count on the support of the medical profession except if it makes it compulsory for physicians to report the cases brought to their attention. As regards the latter, it raises some difficulties relative to information confidentially given, but these, no doubt, can be adjusted.

Congress of French Gynecologists

The eighth Congress of French Gynecologists was attended by representatives of ten nations. Its meetings were presided over by Professor Bender of Paris, with Professor de Snod of Utrecht as honorary president. General Secretary Jayle indicated its particular field of interest; namely, parthenology. As gynecology deals with the grown woman, parthenology studies the organism of the maiden from the threefold point of view of heredity, morphology and physiology as well as the pathologic and therapeutic consequences connected with it. Disorders of girls in the early and adolescent age are becoming increasingly frequent. The first paper, read by Noel of Lyons, was devoted to the embryology of the genital apparatus. Cordier of Lille and his collaborators presented their morphologic investigations of the feminine pelvis before puberty. The sex characteristic of the pelvis can be noted from the fifth month of intra-uterine life. Vanverts of Lille and his collaborators took for their subject the vagina at puberty. Acidification discoverable at puberty is strongly influenced by estrogenic secretions, which cause the accumulation of glycogen in the epithelium of the vagina and the development of Döderlein's bacillus. The vaginal hydrogen ion concentration is then in accord with the estrogenic function. This function was treated by Cordier of Lille and Turpault of Paris. Not only the secondary sexual traits but even the sex of the gonads is embryologically determined by the secretion of the genital hormones. The ovaries are not the only source of estrogenic substances nor are their secretions limited to estrogen. The concentration of estrogen in the blood is somewhat stronger in young girls than in women. There exist before puberty sketchy rudiments of the hormonal cycle, and estrogen increases abruptly at the time of the development of the breasts. Estrogen can be found also in the urine of young boys.

According to Paucot and Bédrine of Lille and other speakers, the effect of hereditary syphilis on the functions of the ovaries is positive in the great majority of cases. It makes itself felt in syphilitic changes in the ovaries. Delannoy and Démarez of Lille treated tumors of the genital apparatus of the young girl. These are accompanied at times by early sexual maturity in harmony with the endocrine activity of the tumor. Two disorders of the breast in young girls, massive hypertrophy and breast cysts, are amenable to endocrine therapy, especially testosterone. Often, however, plastic surgery is the only solution. Sabicandro of Rome discussed the microscopic anatomy of the vaginal mucosa in young girls; Palmer and Juliette Devillers discussed the therapy of primary dysmenorrheas.

The next meeting will be held at St. Malo in 1940 and the subject will be uterine fibromas.

BERLIN

(From Our Regular Correspondent)

July 17, 1939.

Congress for Research on the Circulation of the Blood

This year's session of the Deutsche Gesellschaft für Kreislaufforschung was held in Bad Nauheim and was attended by about 600 physicians. Professor Edens of Düsseldorf presided. The electrocardiogram was the main subject of discussion of the first day. R. Elmquist of Lund, Sweden, discussed the methodology of the electrocardiogram. The physiologist E. Schütz pointed out that the monophase electric current due to tissue activity appears when a pole becomes negative. Its significance lies in the fact that through it the formation of the electrocardiogram can be explained. A. Weber of Bad Nauheim pointed out that the electrocardiogram does not tell anything about the mechanical performance of the heart. It indicates that the contraction of the auricle is followed by that of the ventricle, also the place of origin and duration of the contraction. Local injuries of the cardiac muscle and certain coronary disturbances can be recognized. A sinking of the ST wave after infectious diseases and in attacks of angina pectoris is not easy to record. The continued sinking of the ST wave is an unfavorable sign. It is not easy to ascertain the true condition of the heart. Heart disease can remain unnoticed even until the appearance of cardiac asthma. M. Holzman of Zurich pointed out that the so-called middle infarct is caused by the occlusion of the ramus descendens anterior. The pathologist F. Büchner of Freiburg pointed out that by

the local anemia of the cardiac muscle electrocardiographic changes are created. They may change back when the local anemia is over.

The subject of the second day was the treatment of cardiac muscle injury. A. V. Allen of Rochester, Minn., reported on the results of sympathectomy in essential hypertension before the principal papers were read; only a certain group of hypertensive patients can be treated this way. The subjective complaints will also improve if the hypertension is not influenced. The headaches will improve 100 per cent, dyspnea while working 50 per cent, nervousness 80 per cent and fatigability 40 per cent. The surgical results with respect to decrease in blood pressure were 20 per cent failure, 28 per cent moderate results, in an additional 28 per cent transitory results and 24 per cent good results. From the Volhard clinic in Frankfort on the Main, on the other hand, Hildebrandt in twenty-seven cases did not obtain a decrease in blood pressure by decapsulation or by sympathectomy. Subjective improvements can easily appear. Judging from the experiences of this clinic, the surgical methods of treating high blood pressure are to be viewed with circumspection. The physiologist Broemser of Munich spoke on the different graphic records of cardiac contraction and pharmacologist Gremels of Marburg on the efficiency of the heart under the influence of different drugs. The greatest therapeutic effect was observed with digilanid C, one of the glucosides contained in digilanid. The internist Volhard of Frankfort spoke on the clinical aspects of this subject. Decompensation can be caused by different pathologic conditions: disease of the pericardium and myocarditis; as the therapy differs, the right diagnosis is essential. Cardiac and bronchial asthma are often taken one for the other in practice; in the first case injection of strophanthin may improve the condition; venesection and a small dose of morphine are useful. In all patients who lean toward cardiac asthma, liquids should be prohibited from noon on. In cardiac muscle insufficiency, the patient should lie elevated. Inhalation of oxygen (45 per cent) may cause rapid disappearance of the symptoms of decompensation. The diet must be salt free. Milk should not be given on account of its salt content. In right-sided insufficiency, squill is recommended in preference to digitalis or strophanthin.

The Advertising of Proprietary Foods

In the interests of public health, the propaganda council of Germany has formulated rules relating to the advertising of proprietary foods for infant feeding. The object of the government was to increase in mothers the joy of nursing and to urge them to nurse their babies in order to decrease the infant mortality. In advertising prepared foodstuffs one should keep in mind that mother's milk at an early age should be discontinued only in cases of emergency. Advertising is especially contrary to the interests of public health when it creates the impression that prepared foodstuffs completely take the place of mother's milk. It should be brought out clearly that artificial feeding is to be used only in case it is impossible to use mother's milk. The results attributed to prepared foodstuffs are often out of proportion to their intrinsic value. The consumption of albumin in Germany is not limited exclusively to fresh eggs but is covered to quite an extent by pulverized eggs, which have to be imported mostly from China. The yearly egg consumption of the German people averages about 118 eggs per person. This throws some light on the general food situation in Germany. In advertising preparations for the care of the teeth, the council points out that their effect on tartar is emphasized in a way to create the impression that the preparation in question removed and prevented the formation of tartar. This cannot yet be taken as proved. Restraint should be applied in such recommendations; individual cases of success should not be generalized.

Japanese-German-Italian Dictionary of Medicine

A Japanese-German-Italian dictionary of medicine will be published shortly in Japan. It has been compiled by Dr. Zensetsu Ohja of the University of Kioto with the support of the Italian ambassador in Tokyo. Three and a half years was needed to compile this extensive dictionary.

AUSTRALIA

(From Our Regular Correspondent)

July 19, 1939.

Medical Fees Tribunal

The Queensland branch of the British Medical Association recently established a Medical Fees Tribunal, the purpose of which is to adjudicate on questions of dispute relating to medical fees. The tribunal consists of five members appointed by the council of the branch association at its first meeting every year and may act only on an official request from that council. Its function is to advise the council as to the justness of fees charged in any case placed before them, after all available information on the matter in question has been considered. For the purpose of ascertaining the facts of the matter in dispute, the branch association may be asked to undertake certain investigations, or the tribunal itself may take such steps as may be found necessary to secure such information desired. After investigation the tribunal is required to present to the branch council a report of facts found from the evidence placed before it, and a finding expressed in specified terms. The tribunal may consider and advise only on specific cases and cannot lay down general rules or principles with regard to fees in medical practice. Further, the tribunal cannot be called on to determine questions of policy with regard to medical fees.

Vitamin Content of Mutton Bird Oil

For several years mutton bird oil (from the local petrel Puffinus tenuirostris) has been sold in Victoria and other parts of Australia for the same purpose as cod liver oil. The oil is obtained from the stomach of the young bird at the end of the nesting season and it has been regarded as a reliable source of vitamin A. The original estimations, however, were carried out by biologic methods in the early days of vitamin A estimation before the modern methods were perfected. The vitamin A content of various specimens of the oil has recently been estimated by Davies in Melbourne by nonbiologic methods, namely the Carr-Price process, in which the Lovibond tintometer is employed to estimate the intensity of the blue color in the nonsaponifiable fraction, and the measurement of the intensity of absorption at 328 millimicrons of a solution in cyclohexane. Estimations have been made with both commercial and fresh noncommercial samples and it appears that the A content of the oil is of the very low order of 0.005 per cent (4 blue units) and therefore virtually useless as a medicinal source of vitamin A, even before it has been subjected to the commercial refining processes, which destroy the vitamin. It has also been shown that the liver oils of common local fish such as the snapper, shark, barracuda and mullet, usually contain from 100 to 800 times the concentration in mutton bird oil. The oil was assayed also for vitamin D by the prophylactic biologic method of Hume, Pickersgill and Gaffikin (1932), on albino rats. It is reported to contain "the very low value of 5 international units per gram" and therefore cannot be compared with cod or halibut oil as a vehicle for vitamin D. Finally it has been pointed out that the oil is of little use as a food, as it is mainly a liquid wax rather than a true fat. In view of these facts it would appear better to exploit the common fish liver oils as a vehicle for vitamin A than to continue the use of mutton bird oil.

A Bureau for the Translation of Foreign Literature

A bureau has been opened in Sydney for the translation into English of foreign scientific literature. The staff consists of five professional men from Vienna, where they were previously connected with such an enterprise. The work of this bureau, known as the Scientific Research Auxiliary Services, should prove valuable to research workers in this country, where expert linguists with some scientific experience are rare.

BUCHAREST

(From Our Regular Correspondent)

July 8, 1939.

The Surgical Treatment of Angina Pectoris

Dr. Daniel Danielopolu, a professor at the University of Bucharest, in a recent lecture in Berlin stated that some physicians believe that the scope of the surgical treatment of angina pectoris is to relieve the pain. We would do a disservice to patients if we stopped the pain which befalls them while walking, as it is a signal calling their attention to the approaching attack, whereupon they halt and their hearts get some rest. The object of the operative treatment is the prevention of an attack. What is the mechanism of prevention? Obviously not the removal of the pathologic condition of the coronary arteries nor the stoppage of pathologic changes in the cardio-aortic plexus, because these are not reversible. Danielopolu has shown that these changes are only a predisposing factor and that at the moment of attack something else occurs. Disturbance of the equilibrium between the work and the blood supply of the heart muscle ensues as a result of the accumulation of toxic products of fatigue and these stimulate the sensory nerve endings. This excitation produces, by way of the bulb of the spinal cord, what Danielopolu calls the pressor reflex, which gives rise to certain symptoms and aggravates the intoxication produced by the products of fatigue.

When Danielopolu started his investigations he sought to eliminate this nervous mechanism, the so-called pressor reflex, by somehow interrupting this reflex nerve path. In Danielopolu's method great stress is laid on cutting the more centripetal fibers. In his method the bilateral cutting of the vagus is superfluous, and removal of the stellate ganglion is not permissible because through this ganglion, besides centripetal fibers, sympathetic fibers and coronary dilating fibers pass. Thanks to clinical and experimental research it is known what the role of every nerve is and on this ground Danielopolu recommends the following procedure: cervical sympathectomy without removing the stellate ganglion; cutting of the communicant branches of the vertebral nerve (sixth cervical to first dorsal) and that of the perpendicular vagus ramifications. Of course, before operating one must try medical treatment, but whenever improvement has been thus attained the operation is indicated unconditionally, because a later fatal attack cannot be excluded. With regard to anesthesia, Danielopolu suggests general narcosis. A patient with angina should not know about the details and phases of the operation being performed on him. The operation can be performed in one or two sittings. At the first sitting the dissection of the communicant branches of the vertebral nerve and in the second the cervical sympathectomy is performed. In Danielopolu's cases the first part of the operation often sufficed. Shortening the time of operation reduces the risk of shock.

The Regulation of Balneologists

Under the presidency of Dr. George Baltaceanu, professor of balneology and dietetics at the University of Bucharest, the Supreme Balneoclimatic Council resolved to regulate the number of physicians practicing at bathing resorts. For the younger generation, two or three positions will be allowed according to the importance and size of the bath. It has been resolved that the ministry of public health shall appoint four official balneologists who will superintend the therapeutic possibilities in the single bathing resorts. These, according to their importance, will be distributed in categories. Those in the first category will receive a government subsidy and will be equipped with the most modern therapeutic appliances. The council will take steps at every bath resort to establish a dietary department. The ministry of health will provide cooks, who will be trained at the dietetic clinic of Bucharest University. Provisions are being made that during the bathing season from June 1 till September 30 patients and visitors traveling to health resorts will be given 50 per cent reduction in the railway fare. The ministry of health will reduce the number of first class balneoclimatic stations from 170 to twenty-six. The directors of balneoclimatic stations must be university graduates.

Medical Conditions in Bulgaria

Sofia University, which this year celebrates its fiftieth anniversary, has had a faculty of medicine only since 1918. The average number of physicians who settled in Bulgaria between 1921 and 1937 was 108. At present there are 2,900 medical practitioners in Bulgaria, the ratio to the population being 1 : 2,200, the rate having been 1 : 5,090 in 1924. There is a plethora of doctors in the greater cities, while in the villages there is a shortage. The decrease in the number of physicians in the later years is due to the lack of foreign currency, which renders studying abroad almost impossible, while the faculty of medicine at Sofia admits students only in a limited number. There are 1,100 dental surgeons, all of whom have foreign, chiefly German, diplomas. Dental technicians are not allowed to carry on dental practice in Bulgaria; still there are quacks. About twenty years ago the dental school was dissolved. The number of midwives is 900. There are 382 state-paid midwives in the villages. Hospital nurses are being trained at the Red Cross Hospital in Sofia. The period of training is three years. Their preliminary education generally is restricted to the secondary school.

Marriages

ROBERT HAMILTON WILLIAMS, Olympia, Wash., to Miss Frances Seward Anderson of Lynchburg, Va., June 17.

GEORGE SELLERS GRAHAM, Birmingham, Ala., to DR. SARAH HENRIETTA MCCARTY of Edinburgh, Scotland, July 12.

CLAUDIO RODRIGUEZ ARCE, Newport News, Va., to Miss Louise Henrietta Berger of Richmond, June 14.

CHARLES BURDIS DAVIS JR. to Miss Margaret MacRae Williams, both of Wilmington, N. C., July 15.

SAMUEL OLIVER CANTEY JR. to Miss Elizabeth Yates Simmons, both of Charleston, S. C., June 14.

NICHOLAS E. DOBOS, San Antonio, Texas, to Miss June R. McConnell at Greensburg, Ind., June 1.

LAWRENCE E. KELSEY, Kewanna, Ind., to Miss Loretta Lucille Cooney of South Bend, June 2.

DAVID WILLIAM MARTIN, Durham, N. C., to Miss Joanna Ward Law of Austin, Texas, June 23.

PERCY RYLAND FOX, McComas, W. Va., to Miss Nina Cornelia Kelly of Bristol, Va., August 5.

ALBERT I. DU VALL, Marlboro, N. J., to Miss Jean Anderson McRae of Haddonfield, June 17.

ABRAM JACK TANNENBAUM to Miss Leah Louise Baach, both of Greensboro, N. C., June 10.

DANIEL SUMNER ELLIS, Richmond, Va., to Miss Eloise Goodman of Newport News, June 24.

JEFFERSON DAVIS, Waxhaw, N. C., to Miss Frances Evelyn Little of Statesville, July 15.

ALBERT J. CREVELLO, Warren, Pa., to Miss Leocadia Krysiak of Shenandoah, January 22.

JOHN D. HAMNER JR. to Miss Evelyn Shepherd, both of Richmond, Va., June 24.

Deaths

Francis Hoeffer McMechan, Rocky River, Ohio; Medical College of Ohio, Cincinnati, 1903; member of the American Society of Anesthetists and the American Society of Regional Anesthesia; honorary member of the Royal Society of Medicine Section on Anesthetics, Société française d'anesthésie et d'analgésie, Sociedad de anestesistas de México, Società italiana di anestesia e di analgesia, Australian Association of Anesthesia, Association of Anesthesia of Great Britain and Ireland and others; secretary-general of the Associated Anesthetists of the United States and Canada, and of the International Anesthesia Research Society; honorary associate editor of the *British Journal of Anesthesia* and editor of *Current Researches in Anesthesia and Analgesia;* editor of the *Quarterly Supplement of Anesthesia and Analgesia, American Journal of Surgery,* 1914-1926; editor of the *Ohio State Medical Journal,* 1919-1923; anesthetist to St. Mary's Hospital, Cincinnati, 1903-1914; aged 60; died, June 29, of arthritis deformans, arteriosclerosis and myocarditis.

Hoyt E. Dearholt ⊕ Milwaukee; Rush Medical College, Chicago, 1900; past president of the State Medical Society of Wisconsin and of the Milwaukee Academy of Medicine; vice chairman and secretary of the Wisconsin Committee, International Congress on Tuberculosis, 1907-1908; a director of the National Tuberculosis Association, the American Public Health Association, the National Child Welfare Association and the Wisconsin Conference on Social Work; one of the founders of the River Pines Sanatorium, Stevens Point, Wis., orthopedic surgeon to the Milwaukee County Hospital, 1905-1907, and the Milwaukee Children's Hospital, 1906-1910; chief of health instruction, Extension Division, University of Wisconsin, in 1913; one of the founders, formerly managing editor and for many years on the editorial board of the *Wisconsin Medical Journal;* since 1910 executive secretary of the Wisconsin Anti-Tuberculosis Association; aged 60; died, July 12, in the Columbia Hospital of multiple myeloma.

Warren Plimpton Lombard, Ann Arbor, Mich.; Harvard University Medical School, Boston, 1882; since 1923 emeritus professor, from 1892 to 1898 professor of physiology and histology and from 1898 to 1923 professor of physiology at the University of Michigan Medical School; assistant in physiology at Columbia University, New York, 1886-1888, and assistant professor of physiology at Clark University, Worcester, Mass., 1889-1892; past president and secretary and member of the executive council of the American Physiological Society; member of the Society for Experimental Biology and Medicine; corresponding member of the Société de biologie and associate member of the Société royale des sciences médicales et naturelles de Bruxelles; author of numerous articles in various technical journals; aged 84; died, July 13, in the University Hospital of mesenteric thrombosis.

Jacob Franklin Highsmith ⊕ Fayetteville, N. C.; Jefferson Medical College of Philadelphia, 1889; member of the House of Delegates of the American Medical Association, 1907-1909, 1912, 1921 and 1922; past president of the Medical Society of the State of North Carolina, the Cumberland County Medical Society and the Tri-State Medical Association of the Carolinas and Virginia; past president of the North Carolina Hospital Association; past president of the state board of medical examiners; fellow of the American College of Surgeons; served as chairman of the medical advisory board during the World War; medical director and superintendent of a hospital bearing his name; aged 70; died, June 22, of cerebral and coronary embolism.

Albert Mathieu ⊕ Portland, Ore.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1905; associate clinical professor of obstetrics and gynecology at the University of Oregon Medical School; member and past president of the Pacific Coast Society of Obstetrics and Gynecology; one of the founders and past president of the Portland Society of Obstetricians and Gynecologists; fellow of the American College of Surgeons; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; on the staffs of the Multnomah County Hospital and St. Vincent's Hospital; aged 57; died, July 4, of coronary thrombosis.

Hans Martin Finnerud, Watertown, S. D.; Hahnemann Medical College and Hospital, Chicago, 1889; member of the South Dakota State Medical Association; vice president and medical director of the Midland National Life Insurance Company; formerly member of the state board of regents of education; member of the board of education of the city public schools, state senator, and member of the state board of charities and corrections; was a member of the state board of exemptions during the World War; aged 80; formerly on the staff of the Luther Hospital, where he died, July 10.

Oliver William Hill ⊕ Knoxville, Tenn.; University of Tennessee Medical Department, Nashville, 1907; past president of the Knox County Medical Society, the East Tennessee Medical Society and the Tennessee Pediatric Society; member of the American Academy of Pediatrics; on the staffs of the Fort Sanders Hospital, Knoxville General Hospital and St. Mary's Hospital; since 1915 lecturer at the Southern Pediatric Seminar, Saluda, N. C.; aged 56; died, June 21, of coronary occlusion.

Albert Haeseler Super, Pottstown, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1903; member of the Medical Society of the State of Pennsylvania and of the American Psychiatric Association; at various times on the staffs of the Allentown (Pa.) State Hospital, Pottstown Hospital and the Homeopathic Hospital; for many years superintendent of the Pennhurst (Pa.) State School; aged 58; died, May 11, of cerebral hemorrhage.

Henry Augustus Becker ⊕ Cleveland; Western Reserve University Medical Department, Cleveland, 1894; fellow of the American College of Surgeons; veteran of the Spanish-American War; served in various capacities on the staffs of the Fairview Park Hospital, Lakeside Hospital and the Cleveland City Hospital; formerly demonstrator of surgery, instructor in surgery and assistant clinical professor of surgery at his alma mater; aged 69; died, June 18.

Floyd Jackson Bolend, Oklahoma City; St. Louis College of Physicians and Surgeons, 1906; associate professor of medicine emeritus at the University of Oklahoma School of Medicine; on the staffs of the University Hospital, Oklahoma General Hospital and St. Anthony Hospital; served during the World War; aged 61; died, June 22, of coronary thrombosis.

Walden M. Ward, North Collins, N. Y.; University of Buffalo School of Medicine, 1885; past president of the Medical Society of the County of Erie; for many years health officer; was attending physician at the Thomas Indian School and government physician to Indians on the Cattaraugus Reservation; aged 80; died, May 5, of diabetes mellitus.

Thomas Henry Weldon, Manchester, Conn.; University of the City of New York Medical Department, 1883; member of the Connecticut State Medical Society; past president of the Hartford County Medical Society; on the staff of the Manchester Memorial Hospital; aged 77; died, May 21, of hypertrophy of the prostate and subacute prostatitis.

Linnaeus Hodgson Prince, Hines, Ill.; Jefferson Medical College of Philadelphia, 1900; member of the American Association of Pathologists and Bacteriologists; served during the World War; served as pathologist on the staff of the Veterans Administration Facility, where he died, July 8, of arteriosclerosis and cerebral hemorrhage.

William Frederick Lunsford ⊕ Kansas City, Kan.; University of Oklahoma School of Medicine, Oklahoma City, 1923; city health officer; formerly member of the state board of health of Missouri; aged 41; died, July 4, in a hospital at Nevada, Mo., of injuries received in an automobile accident.

Ulysses Grant Williams ⊕ Newport, N. Y.; Syracuse University College of Medicine, 1892; past president of the Herkimer County Medical Society; formerly coroner and for many years health officer in the Newport district; aged 76; died, May 14, in St. Luke's Hospital, Utica, of pneumonia.

George Nathan Wassom ⊕ Oelwein, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; past president of the Fayette County Medical Society; formerly on the staff of the Mercy Hospital; aged 58; died, May 8, of coronary occlusion.

Ernest Herman Smith, Redding, Conn.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; member of the Connecticut State Medical Society; formerly member of the school board; aged 75; died, May 4, in the Danbury (Conn.) Hospital of pneumonia.

Samuel James Stewart, Alhambra, Calif.; Lincoln (Neb.) Medical College of Cotner University, 1902; served during the World War; district health officer; formerly medical superintendent of the Nebraska Institute for Feeble Minded, Beatrice; aged 59; died, May 24, in the Alhambra Hospital.

Harold James Terrill ⊕ Ottawa, Kan.; University of Kansas School of Medicine, Kansas City, 1921; past president of the Franklin County Medical Society; on the staff of the Ransom Memorial Hospital; aged 44; died, May 19, of bronchopneumonia and acute miliary tuberculosis.

Aart Van Westrienen, Kenosha, Wis.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1899;

member of the State Medical Society of Wisconsin; on the staff of the Kenosha Hospital; aged 70; died, May 30, of myocarditis and arteriosclerosis.

Lewis Whitaker Allen, Tenafly, N. J.; Cooper Medical College, San Francisco, 1896; New York Homeopathic Medical College and Hospital, New York, 1897; formerly on the staff of St. Luke's Hospital, San Francisco; aged 67; died, June 13, of coronary thrombosis.

Edward Harvey White, Stanhope, Iowa; State University of Iowa College of Medicine, Iowa City, 1906; veteran of the Spanish-American and World wars; aged 60; died, May 18, in the Veterans Administration Facility, Des Moines, of diabetes mellitus.

Frederick William James, Utica, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1894; aged 68; died, May 21, of chronic nephritis, acute dilatation of the heart and chronic endocarditis.

Charles Alvin Yocom, Douglassville, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1885; served during the World War; aged 81; died, May 9, in the Veterans Administration Facility, Coatesville, of chronic myocarditis.

David Charles Munford, La Habra, Calif.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1909; served during the World War; aged 59; died, May 29, of injuries received in an automobile accident.

Gustav Walter Zulauf, Pittsburgh; University and Bellevue Hospital Medical College, New York, 1912; served during the World War; aged 49; superintendent of the Allegheny General Hospital, where he died, May 8, of myeloma.

George Conrad Weiss, Mount Vernon, N. Y.; Bellevue Hospital Medical College, New York, 1882; past president of the city board of health and health officer; aged 78; died, May 31, in Poughkeepsie of coronary artery disease.

Paul F. Pershing, Altoona, Pa.; Jefferson Medical College of Philadelphia, 1910; member of the Medical Society of the State of Pennsylvania; on the staff of the Altoona Hospital; aged 52; died, May 2, of heart disease.

Percy Greenough Drake, Hartford, Conn.; Harvard University Medical School, Boston, 1904; member of the Connecticut State Medical Society; aged 62; died, May 22, of arteriosclerosis and cerebral thrombosis.

Ernest Alvah Brooks, Brooklyn; Long Island College Hospital, Brooklyn, 1932; member of the Medical Society of the State of New York; aged 29; died, June 9, in the Long Island College Hospital.

Nina Maximova Take, New York; Medical Institute for Women, St. Petersburg, Russia, 1913; aged 49; died, May 30, in the Harlem Valley State Hospital, Wingdale, N. Y., of pulmonary tuberculosis.

Frank H. Widman, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1893; registrar and professor of physiology at his alma mater; aged 67; died, May 7, of cerebral thrombosis.

Eugene Orvin Barker, Guthrie, Okla.; Northwestern Medical College, St. Joseph, Mo., 1883; member of the Oklahoma State Medical Association; aged 84; died, June 24, of coronary thrombosis.

Albert Lake Tuttle, Lakeville, Conn.; Albany (N. Y.) Medical College, 1888; member of the Connecticut State Medical Society; aged 75; died, May 11, of arteriosclerosis and cerebral thrombosis.

Peter Prentiss Causey, Courtland, Va.; University of Maryland School of Medicine, Baltimore, 1897; member of the Medical Society of Virginia; county health officer; aged 66; died, June 5.

Columbus C. Ward, Crisfield, Md.; Baltimore Medical College, 1894; formerly county health officer; aged 74; died, May 26, in the University Hospital, Baltimore, of carcinoma of the pancreas.

James Jackson Backus, Gracey, Ky.; Chicago Homeopathic Medical College, 1886; member of the Kentucky State Medical Association; aged 82; died, June 23, of coronary thrombosis.

Bernard Francis Corbett, Flint, Mich.; Marquette University School of Medicine, Milwaukee, 1913; served during the World War; aged 50; died suddenly, June 29, of heart disease.

Arthur Keys Odbert, South Brownsville, Pa.; University of Pittsburgh School of Medicine, 1911; aged 51; died, May 7, in the Charleroi-Monessen Hospital, Lock No. 4, of pneumonia.

Orland Vernon Donaldson, Gore, Ohio; Starling Medical College, Columbus, 1901; member of the Ohio State Medical Association; aged 60; died, June 23, of chronic nephritis.

William Louis Wheeler, New York; Columbia University College of Physicians and Surgeons, New York, 1900; aged 65; died, May 22, of carcinoma of the prostate.

Emma C. Lefevre, Elmira, N. Y.; University of Buffalo School of Medicine, 1892; aged 81; died, May 1, in the Arnot-Ogden Memorial Hospital of arteriosclerosis.

William J. Smith, Anderson, S. C.; Medical College of the State of South Carolina, Charleston, 1903; aged 60; died, May 22, in the Anderson County Hospital.

Howardson Nathaniel Stoute ✠ New York; University and Bellevue Hospital Medical College, New York, 1924; aged 46; died, May 9, of malignant hypertension.

William H. Balthrop, Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, Tenn., 1882; aged 88; died, June 24, of cerebral hemorrhage.

Franklin Endress Bamberger, Lebanon, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1902; aged 73; died, May 22, of chronic myocarditis.

William Muthard Hillegas, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1894; aged 65; died, May 11, of chronic myocarditis.

Joseph William Ballenger, Carbon Hill, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1884; aged 78; died, June 3, of mitral stenosis.

Hosea Franklin Downs, Clanton, Ala.; University of Nashville (Tenn.) Medical Department, 1908; aged 50; died, May 9, of pulmonary tuberculosis.

William Fairbanks, Buffalo; Bellevue Hospital Medical College, New York, 1891; aged 69; died, May 6, of arteriosclerosis and chronic myocarditis.

Arthur N. House, Kankakee, Ill.; Rush Medical College, Chicago, 1893; aged 72; died, May 12, near Escalon, Calif., of arteriosclerosis and heart disease.

Isaac H. Springer, Daytona Beach, Fla.; University of Georgia Medical Department, Augusta, 1875; aged 85; died, May 31, of cerebral hemorrhage.

James Sterrett Caldwell, Cincinnati; Miami Medical College, Cincinnati, 1883; aged 88; died, June 14, of ventricular fibrillation and bronchiectasis.

George Alvin Clauser, Bridgewater, S. D.; State University of Iowa College of Medicine, Iowa City, 1897; aged 74; died, June 27, of carcinoma.

Edward Engler Gibbons, Baltimore; University of Maryland School of Medicine, Baltimore, 1895; aged 67; died, May 30, of acute myocarditis.

Francis Edwin Van der Veer, Atlanta, Ga.; Albany (N. Y.) Medical College, 1899; aged 66; died, May 30, of cerebral hemorrhage.

Otho Barnett, New Harmony, Ind.; University of Louisville (Ky.) Medical Department, 1894; aged 70; died, June 26, of angina pectoris.

John L. Seay, Eastwood, Ky.; Louisville Medical College, 1889; aged 71; died, May 29, of injuries received when struck by an automobile.

John Franklin Rice, Vinita, Okla.; Missouri Medical College, St. Louis, 1886; aged 79; died, May 23, of cerebral arteriosclerosis.

Daniel Lafayette Carmichael Sr., Los Angeles; Jefferson Medical College of Philadelphia, 1884; aged 81; died, May 16, of myocarditis.

Claude Gailard Martin, Joplin, Mo.; Hospital College of Medicine, Louisville, 1907; aged 56; died, May 22, of coronary heart disease.

Ernest M. Thompson, Fayetteville, Ark. (licensed in Oklahoma, under the Act of 1908); aged 68; died, May 28, of chronic myocarditis.

Ferdinand H. Scholle, Los Angeles; Baltimore University School of Medicine, 1897; aged 58; died, May 19, of cirrhosis of the liver.

Edward C. Bechtol, Grapevine, Texas; Dallas (Texas) Medical College, 1904; aged 79; died, June 20, of cerebral thrombosis.

Conrad Peter Brunig, Lehigh, Kan.; Kansas City (Mo.) Medical College, 1903; aged 68; died, May 8, of carcinoma of the larynx.

Feodor W. Koehler, Louisville, Ky.; Hospital College of Medicine, Louisville, 1881; aged 82; died, May 30, of coronary occlusion.

Logan R. Pryor, Eaton, Ohio; Pulte Medical College, Cincinnati, 1896; aged 66; died, May 14, of cerebral thrombosis.

Bureau of Investigation

AN "EPILEPSY CURE" FRAUD

Anli Company Is Debarred from the Mails

Under the trade style of the Anli Company a Mr. and Mrs. Murray A. Shaw and a Mr. and Mrs. Benjamin Margolis of New York City sold through the mails a nostrum called the "Black and White Treatment" for epilepsy. Hon. W. E. Kelly, Acting Solicitor for the Post Office Department, in recommending the issuance of a fraud order against this scheme, brought out the following facts:

The business was started in August 1937 and the public was reached through advertisements placed in various newspapers and magazines. Those who answered them received a long form-letter, claiming among other things that:

> "Of the hundreds of poor afflicted sufferers we have treated, only six per cent have not gotten complete relief, and every one of these have immediately received their money by return mail when they requested. . . .
>
> "Epilepsy in its most dreadful forms has at last been overcome. Up to a few years ago, the entire medical profession could accomplish very little with this awful disease.
>
> "Take our treatment and become our life-long friend. The results you will get in the first few days will bear out this important fact. If you suffer from epilepsy, St. Vitus dance, hysteria, convulsions, falling sickness, you will get complete relief."

In its written "guaranty" the company declared that its treatment contained "no poisons of any kind" or "habit-forming drugs," and "will not harm man, woman or child." Further,

FITS (EPILEPSY) stopped at once or no pay. Results guaranteed. Write at once for **FREE** literature, on **"Black and White" Treatment**
ANLI CO. **DF1.8** **220 W. 42nd St., N. Y. C.**

this "patent medicine" concern would mislead the public into believing that the nostrum had received scientific recognition, in making the following statement:

> "THE NEW REMEDY
>
> "Recently the greatest specialists in epilepsy began their experiments on the thousands of patients in epilepsy colonies. Soon thereafter the following amazing report was officially issued: 'It is the most useful thing that has been learned since 1915 in the treatment of epilepsy. In 80 per cent of the cases tried at the North Carolina State Colony for Epileptics, it removed all attacks completely. It gives the best results and the least trouble of all remedies in the treatment of epilepsy.' We then at once decided to place this wonderful remedy within the reach of every suffering epileptic in this country and abroad. Our success was immediate and astounding."

Thus the concern would have the public believe that its "cure" was a new one, whereas the potent drug in it was phenobarbital (luminal), which was introduced to the medical profession for the treatment of epilepsy as long ago as 1912. The black tablets in the treatment were reported by government chemists to consist of sucrose, starch, blue dye and 0.63 grain of phenobarbital each; the white tablets were found to contain sucrose, starch, talc and 0.70 grain of phenobarbital each. The report pointed out that the patient who followed the directions would ingest about 4 grains (0.25 Gm.) of phenobarbital during the first two days. On succeeding days the amount of this drug would be gradually reduced until the tenth day, when he would be taking a little more than 1 grain (0.065 Gm.) of phenobarbital.

The Post Office Department presented medical evidence to show that phenobarbital can partially suppress convulsant symptoms due to excessive excitant stimuli to the motor mechanism of the brain but that these effects are merely temporary, since the drug does not remove the cause of epileptic or other convulsive fits or attacks; that it is not recognized as having the facility to "stop completely" all epileptic attacks in persons suffering from that disease as claimed by the Anli people, nor could they honestly represent that 94 per cent of all epilepsy victims would be cured of that disease by the product in question. It was further pointed out that in many instances the causes of epilepsy cannot be determined even by careful and complete physical examination, as in some cases the condition might be due to brain injury, which might require an operation, and in these circumstances neither the Anli treatment nor any other medication would be of any use. It was shown too that, regardless of the time that victims of epilepsy take the barbiturates or other sedative drugs they cannot be assured of "complete relief" from the disease by such means.

Although the Anli concern claimed that its treatment contained no habit-forming drugs, the Post Office report pointed out that this claim was false, as phenobarbital is definitely recognized as a potent harmful narcotic, which is habit forming; that many cities, states and countries permit that it be sold only on a physician's prescription. Also declared false was the claim that the Anli treatment contains a "new remedy," since its constituent drug was known and introduced in 1912.

The Post Office Department pointed out that by means of fraudulent representations the Anli concern was able to charge $5 for sixty tablets containing an amount of phenobarbital that could be bought at a drugstore for $1 and, further, that the "guaranty" of a refund in thirty days to dissatisfied customers was practically meaningless, as the company attempted to persuade them to continue taking the treatment longer. Further, it was shown that no physicians, chemists or pharmacists were employed by the concern, which simply purchased the tablets from a New York drug house. The fraud order debarring the Anli outfit from further use of the mails was issued Oct. 29, 1938.

A FRAUDULENT "CURE-ALL"

Harry Treats Swindle Is Denied Use of the Mails

Harry Treats Company was the name used by a Harry Seligman of Philadelphia who conducted a fraudulent mail-order business, promoting a nostrum called "Special 'D' Herbal Tonic." This was represented to overcome kidney, bladder, gallbladder and heart disorders, "blood impurities," "body infections" and some other things.

Seligman's advertising listed a long series of symptoms that were supposed to indicate the need of taking his product and made it appear to be something of a cure-all. Analysis by government chemists showed it to be a mixture of magnesium carbonate, aloin, papain, baking soda, potassium bromide, bismuth subcarbonate, kaolin, glycerin, cudbear, orange syrup, tinctures of belladonna and nux vomica, and oils of peppermint, fennel and caraway, plus alcohol and water.

When the Post Office Department summoned Seligman to show cause why a fraud order should not be issued against him, expert medical testimony was brought in to show that the numerous disorders for which Seligman's nostrum was advertised may be due to a wide variety of causes, including venereal diseases, streptococcic infection and numerous others, the nature of which must be determined in each case by careful diagnosis and subjected to treatment to suit the individual case. It was further shown that the nostrum possessed only mild, antacid, laxative, diuretic and stomachic properties and hence was without substantial therapeutic value for any of the conditions for which it was sold. It was further pointed out that the use of the Seligman product might result in loss of life, because of the users' failure to obtain proper treatment for their maladies until they have become incurable.

Seligman's answer to the charges was that he had not represented his preparation as "overcoming" the various diseases and conditions named in the memorandum of charges. The Post Office, on the contrary, substantiated its charges by referring directly to the advertisements in which the diseases in question were mentioned. Seligman also claimed that he had discontinued all advertising, but the Post Office presented evidence showing that as of a recent date mail was still being received in connection with the enterprise. It was therefore recommended that a fraud order be issued and on Oct. 1, 1938, this was done, prohibiting the Harry Treats Company and its officers and agents as such from the further use of the mails.

In this connection it may be worth noting that in 1937 the Federal Trade Commission announced that, as the result of an action it had brought against Harry Seligman, trading as Harry Treats Company, Philadelphia, he had promised to discontinue representing that his product "R 1739" is a competent treatment for diseases of the kidneys or bladder, and that his "Special 'D' Herbal Tonic" is an effective remedy for sores, eczema or nervous excitement. Further, he promised to discontinue advertising that he conducts a medical clinic.

Correspondence

THE DEGREE OF DOCTOR

To the Editor:—I am a member of that most insignificant class of human beings which in the technical language of the medical profession is known as "the laity." Whatever meager medical knowledge I may have absorbed from a course in a nonapproved evening medical school some thirty years ago has long ago faded into oblivion, leaving me only a rather unusual understanding of the place of medicine in the modern social order. As a layman I am interested in some of the problems of medical economics as far as they relate to providing adequate and scientific medical service to the public (protecting the public from quacks and impostors) and as certain threats to the medical profession threaten equally my own vested interests. As a doctor of philosophy I am very much alarmed by a recent tendency to lower the dignity of and public respect for not only the degree of doctor of medicine but also all other legitimate and earned doctorates.

Although both the federal and state laws are quite rigid in protecting the public against misbranded merchandise, not only medicines and foods but also other commodities, apparently the Better Business Bureaus and the Federal Trade Commission are entirely neglecting to protect the public against imposition and fraud on the part of those who by assuming the title of "doctor" give the impression that they are medically trained.

I recently submitted an advertisement of an optometrist describing himself as "Dr. Blank, O.D." to fifty persons of average intelligence. Forty-seven of these were definitely of the opinion that "Dr." Blank was a regular medical graduate who had by means of graduate work and other special training equipped himself to be especially well fitted to treat defects of the eye. A recent investigation has disclosed that practically all the "doctors" of optometry who constantly keep themselves before the public have had less than one year of college work. Many prominent officials of the optometric societies and state boards acquired their "knowledge" by means of six weeks residence or short correspondence courses. At the present time optometric education may be divided into two distinct types of institutions. The first type includes Columbia, Ohio State and California universities. These offer a standard four years course, based on a high school training, which course leads to the degree of B.S. or B.A. Neither of these standard institutions recognizes the "doctorate" in optometry either by granting the degree or by indicating that the degree is held by a member of the faculty. On the other hand, the second type of schools, privately owned and actually conducted for profit (although frequently chartered "not for profit"), grants the doctorate on less work than is required for graduation from a good junior college. An official of one of the Chicago optometric colleges recently boasted that the Chicago schools receive a good many students from California because they give the "doctorate" degree while their own state university grants merely a bachelor's degree. In other words, the low standards of these private schools clearly stamp them as diploma mills. What I have stated concerning optometry can with equal truth be said about the schools of chiropody. I see a distinct danger that all the excellent work which has been done by the American Medical Association to weed out the inferior medical schools will be undone if the present tendency in the direction of optometry and chiropody is permitted to continue. These schools are now beginning to offer four year courses which embrace practically all the subjects in the regular medical curriculum. The actual facilities and faculty of some of these schools would have been a disgrace even to the old National Medical University and the St. Louis College of Physicians and Surgeons. Their present plans appear to be, according to reliable information, to convert these schools into medical schools granting the M.D. degree, first by calling it "M.D. in Optometry" or "M.D. in Chiropody" and then making it a straight M.D. By offering a four year course having, on paper, the content of a regular medical course, it will not be difficult for them to induce a politically minded legislature to give their graduates full M.D. recognition.

Although I desire merely to direct your attention to a situation which, even from a layman's standpoint, constitutes a menace to the public health, it may not be out of place to mention several possible remedies. The corporation laws of Illinois and other states should be amended so as to prevent the granting of a doctor's degree by any educational institution on less than seven years of actual work. The statutes should prohibit the use of the title doctor in connection with any healing art by any one who does not have a regular medical training. The statutes that grant special privileges to persons selling eye glasses, known as optometrists, should be repealed and the sale of eye glasses, like the sale of shoes, trusses and braces, should be open to all merchants.

There does not appear to be any more reason why the correspondence school trained, or the six weeks course, optometrist or chiropodist (or even the four year men in these fields) should be called "doctor" than that the same degree should be granted to graduate nurses or to barbers or beauty culturists. It is probably only a question of time until some bright mind will conceive the idea of purchasing from the state of Illinois a charter for a college of barbering and beauty culture and of granting a "doctorate" to its graduates. That such a plan would be quite profitable seems certain. The barbers would have in their favor, at least, some historical basis. The various functions of the beauty culturist, such as massage, application of electricity to the hair and face, the puncturing and squeezing of pimples and extraction of blackheads, certainly is as much "doctoring" as removing corns, extracting ingrown toe nails and massaging fallen arches.

It may be well for the American Medical Association to work with such groups as the American Association of University Professors, the American Association for the Advancement of Science and other bodies to secure legislation to protect the public against fraud and deception and to prevent the unscrupulous charlatans from appropriating to themselves prestige and glory which the medical profession has earned by years of sacrifice, suffering, endless labor and unselfish faithful service to humanity.

FREDERICK JUCHHOFF, LL.M., PH.D., Chicago.

CARBOHYDRATES AS CONSTITUENTS OF PROTEINS

To the Editor:—A short editorial in the May 20 issue of THE JOURNAL under the heading "Carbohydrates as Constituents of Proteins" contains a reference to the work of Claude Bernard. According to this, Bernard, finding that liver glycogen is formed when protein is fed to an animal, assumed that preformed carbohydrate must be present in the protein and postulated a glucosidic theory of protein structure.

As I have pointed out in a recent paper (Claude Bernard and the Theory of the Glycogenic Function of the Liver, *Ann. Sc.* **2**:47, 1937), widespread misapprehension exists today concerning Bernard's views on glycogen formation in the liver. As a result of his early discoveries, this great French physiologist was deeply impressed with the idea that glycogen and dextrose are secretions of the liver; according to this idea, a continuous formation of sugar accounted for the presence of this substance in the liver of a fasting animal or of an animal receiving a noncarbohydrate diet: "Le sucre hépatique est formé primitivement dans le foie," (Claude Bernard, 1853).

Although he believed that protein could be converted into liver glycogen, Claude Bernard doubted the possibility that a direct transformation of ingested sugar into glycogen in the liver could occur. This point is discussed at some length in my paper just referred to, in which a number of Bernard's mutually contradictory statements on this subject are quoted. It must be stressed that the formation of sugar in the liver of the fasting animal, necessitating the production of sugar from noncarbohydrate sources including protein, is a fundamental element in Claude Bernard's theory of the glycogenic function of the liver.

The discovery that some types of protein matter contain sugar was not made by Claude Bernard; indeed, the presence of sugar in protein matter such as egg white was known many years before the discovery of glycogen. Realization of the possible metabolic significance of the preformed carbohydrate in protein was due to Frederick Pavy, an ardent opponent of Claude Bernard's theories. Pavy's own investigations and his theory of the "glucoside constitution of proteid matter" (1881, 1893) greatly assisted Pflüger's opposition to the belief that liver glycogen can be formed from protein per se (Pflüger, E. F. W.: Das Glykogen, 1905), an opposition which Pflüger was ultimately forced to withdraw. Nevertheless, the erroneous idea of Pavy and Pflüger is now ascribed to Claude Bernard, whose method of publication in discursive "leçons" has unfortunately assisted in bringing about the present confusion.

F. G. YOUNG, D.Sc., PH.D., LOND.,
National Institute for Medical Research,
Hampstead, London, N. W.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

BREAST VERSUS BOTTLE FED INFANTS

To the Editor:—**A recent speaker is quoted in one of our local papers as follows: "The children fed mother's milk grow up with better muscles, teeth and bones and have a better chance of surviving the first six months of life than those fed on cow's milk." These assertions are, no doubt, of the sort one should like to accept as "self evident." It strikes me, however, that much loose thinking and even more loose talking has been done on this subject. I should greatly appreciate your comment on the following questions: 1. Of statistics intended to show the superiority of breast fed over bottle fed babies, how many are based on carefully controlled observations covering comparable groups of children in which the only variable is the feeding? 2. Is there any series of observations covering infants in the so-called favored class with reference to results of breast and bottle feeding? 3. It would be easy to believe that bottle fed babies in the slums would be much more subject to gastrointestinal disturbances than would breast fed babies in the same group. In how many cases does this explain the apparent superiority of breast feeding over bottle feeding? 4. If well baby clinics urge breast feeding rather than bottle feeding and if one allows that mothers attending these clinics are likely to be those most diligent in the general care of the child, is it not possible that we have here an artificial selection which would tend toward favorable statistics for breast feeding when, as a matter of fact, many other factors may be concerned in the favorable result? 5. Is it not true that even in the course of the past ten years the practice in artificial feeding has changed to such an extent as partially or wholly to vitiate the older statistics? It is my personal feeling that nowadays it is rare to encounter an infant with gastrointestinal difficulties which do not yield promptly to feeding based on modern practice. 6. In the quotation given at the beginning of this letter it would be interesting to know just what criteria were used in deciding on the following points: (a) "better muscles," (b) "better teeth," (c) "better bones." Here again may we not have an example of the sort of loose talk that sounds well but may be difficult or impossible to substantiate?**

Thomas C. McVeagh, M.D., Honolulu, Hawaii.

ANSWER.—Brennemann (Practice of Pediatrics, Hagerstown, Md., W. F. Prior Company, 1936, vol. 1, chapter 25) states: "The milk of every mammal is specific for its young. To this man is no exception. There is, furthermore, evidence that the milk of one mammal is not only imperfectly adapted to the young of other mammals but that there is even something harmful in nonspecific milk. The essential nature of this specificity is unknown. While it may eventually prove to be largely, or wholly, a matter of chemistry, there is reason to believe that there is also an intangible biologic factor. . . . That an apparently perfect nutritional result can be obtained without any breast milk is a matter of daily observation. That the apparent result may not be real is possible, even probable."

1. The best statistics on the superiority of breast feeding are those of Grulee, Sanford and their co-workers (THE JOURNAL, Sept. 8, 1934, p. 735, and June 1, 1936, p. 1986; *J. Pediat.* **6**:825 [June] 1935, and **9**:223 [Aug.] 1936). These are carefully controlled observations covering comparable groups of infants in which the only variable was the feeding. They observed more than 20,000 infants from birth to 9 months of age attending the stations of the Infant Welfare Society of Chicago over a period from 1924 through 1929. Of these, 48.5 per cent were breast fed, 43 per cent were partially breast fed and 8.5 per cent were artificially fed. These infants lived in an environment in which they were particularly subjected to the chance of infection. Gastrointestinal, respiratory and unclassified infections were tabulated. The seasonal curve of morbidity and mortality was not affected in its contour by the type of feeding. The height of the curve, however, was continually lowest in all seasons in the breast fed infant. All three types of infections listed were involved about equally. There was a definite rise in the morbidity after the sixth month in the artificially fed that was not shared in by either the breast fed or the partially breast fed group. The mortality figures were as follows: Of the total deaths 6.7 per cent occurred in the breast fed, 27.2 per cent in the partially breast fed and 66.1 per cent in the artificially fed. The total morbidity of the breast fed group was 37.4 per cent, of the partially breast fed 53.8 per cent and of the artificially fed 63.6 per cent. The charts show conclusively the effect on the mortality of infants and protection against infection. Also the general incidence of infantile eczema was lowest in the breast fed infants. In the partially breast fed it was twice as frequent as in the breast fed, and in the artificially fed infants it was seven times as great.

2. Blessing (The Incidence of Breast Feeding in a Suburban Metropolitan Area, *J. Pediat.* **10**:792 [June] 1937) found, in accordance with the experience of most pediatricians dealing with an upper middle class private clientele (so-called favored class), that the incidence of breast feeding in this group was low. Yet the infants seemingly were healthy. Of course, he studied only 437 instances. At 1 month 24 per cent were completely weaned; at the end of three months only 19 per cent were completely breast fed, 25 per cent partially and 56 per cent completely weaned. At the end of six months, 83 per cent were completely weaned. He reviews the literature relating to the experience of others with this type of private practice. Most of the authors reviewed have statistical tables of results of breast and bottle feeding in private practice. He concludes that breast milk is the ideal infant food but agrees with Lamb, who states that "it is quite proper to encourage breast feedings, but we should not make the mistake of disparaging substitute feedings, for . . . the babies fed on artificial milk formulas have shown no serious deviation from that normal development that regularly follows adequate breast feedings," and with Glazier, who pointed out that infant mortality and morbidity are definitely related to economic and hygienic conditions and that in districts where these conditions were good the average bottle baby does as well as the breast fed. The converse is undoubtedly true, as shown so conclusively by Grulee's figures.

3. Refer above to Grulee and his associates' statistics.

4. The babies in the Grulee series are a pretty good cross section of those living in the slum districts of Chicago. All indigent families with newborn infants are followed up by the Chicago Health Department and almost forced to attend Infant Welfare Clinics.

5. This is a debatable point.

6. The "loose talk" mentioned probably has not been substantiated statistically but is merely some one's personal impression.

CONTAGIOUS DISEASE AND OBSTETRIC PRACTICE

To the Editor:—As an adviser to several hospitals for the management of their maternity departments, I am confronted with several problems to which I do not know the correct answers or where to find their solution; hence I apply to you: In the management of an isolated maternity department within a general hospital, with separate isolation for infectious cases but having no detention department for cases exposed to contagious diseases before entering the hospital, what disposition should be made of a woman in labor at whose home there is whooping cough, measles, mumps, scarlet fever, diphtheria or septic sore throat? Should such a patient be admitted to the maternity floor? Should she be kept in the lying-in room before delivery? Should she be delivered in the regular delivery room? Should she be kept on the maternity floor with other parturient patients? Should the regular nursing personnel take care of such a patient? Should the baby be kept in the general nursery? Should the nursery nurses take care of the infant in detention? Should her husband, who lives at home, be permitted to visit her at the hospital? Should a patient with lobar pneumonia be kept on the maternity floor if individual nursing isolation technic is employed? Should a patient with an acute infection of the upper respiratory tract be kept on the maternity floor? Should a patient in whom pyelitis develops be moved from the maternity floor? Is it fair to such patients to place them in isolation quarters with patients with puerperal infection? At first thought it would seem as though the answers to all these questions should be quite obvious. However, in justice to the patient and the newborn infant should the hospital refuse them admittance? I may add that my conferences with pediatricians and epidemiologists on the questions bring answers only such as "Carrying of contagion would be very remote" or "At such and such hospitals they do so and so," and that does not solve the problem. I believe that the problem is of sufficient importance to merit an authoritative statement for guidance. If there are in print hospital regulations covering these questions, I should appreciate being directed to them.

H. F. Beckman, M.D., Indianapolis.

ANSWER.—(This query has been referred to several qualified obstetricians and health officials.) The questions can be answered, with a few exceptions, most expeditiously by dividing the diseases about which inquiry is made into two groups. Group 1 would include whooping cough, measles and mumps. Group 2 would include scarlet fever, diphtheria and septic sore throat. The differences between these two groups are that the first group is confined largely to children and that their spread by intermediate carriers, if it occurs, has at least not been demonstrated. The second group may occur at any age and carrier transmission is either proved or strongly suspected. The first group can therefore be treated with more latitude.

A pregnant woman coming from a home in which there is whooping cough, measles or mumps could properly be admitted to the maternity floor if she has previously had the disease that is present and if she is bathed, shampooed and fitted with clean clothing before she enters the ward. She may also be delivered in the regular delivery room and kept with other parturient patients. She may be cared for by the regular nursing personnel. The baby may be kept in the general nursery and need not be kept in detention. Her husband may be permitted to visit her at the hospital, especially if the wearing of gowns and masks is the routine practice.

With a patient coming from a home in which there is scarlet fever, diphtheria or septic sore throat, the procedure should be different. Such a patient cannot be kept safely on the maternity floor, delivered in the regular delivery room or be under the care of regular nursing personnel who also care for other mothers and babies. The baby likewise should be kept separate, and no visitors should be permitted for their own sake. These precautions are advisable even if the woman herself has not been proved to be a carrier, since negative laboratory reports are not in themselves sufficient justification for possibly exposing other patients on the maternity floor or in the nursery to these serious carrier-transmitted contagious diseases.

A patient with lobar pneumonia or an acute infection of the upper respiratory tract should not be kept on the maternity floor. A patient with pyelitis need not be moved from the maternity floor provided isolation technic is followed. None of the patients referred to should be placed in isolation quarters with patients with puerperal infection. Wherever such patients may be cared for, rigidly controlled nursing technic is essential.

As to whether admittance to a hospital may be refused "in justice to the patient and the newborn infant," the general opinion is that home confinement under proper conditions has been demonstrated to be as successful and as safe as hospital delivery. The presence of scarlet fever and pregnancy in the same house constitutes a serious threat to the parturient woman, owing to the close relationship of the streptococci responsible for scarlet fever and for puerperal infection. The parturient woman should be removed from contact with the scarlet fever patient as soon as possible, either by separating off a portion of the house or by arranging for her care in another house where there are no children. If she has previously had scarlet fever, the danger is lessened as far as her likelihood of getting the disease is concerned, but she may still have acquired an implantation of streptococci in her throat from which she may become puerperally infected or from which her baby may derive scarlet fever or septic sore throat. Passive immunization may be given if no contraindications exist. Essentially the same argument applies to diphtheria. If the condition of the patient warrants and there are no contraindications such as previous administration of antitoxin or a known allergic state, passive immunization should be given against diphtheria. Cultures should be taken of the nose and throat daily and appropriate local treatment given in an endeavor to eradicate the streptococci which may be present. In summation, it would appear that the same regulations regarding the spread of infectious and contagious diseases so far as they relate to obstetrics should be followed as under other circumstances but that the particular susceptibility of the maternity patient, and sometimes of the newborn child, necessitates even greater than ordinary precautions.

[The answer was sent to Dr. Beckman, who makes the following comment:]

The answer, it would seem, is that:

1. They should not be admitted to a regular maternity service.
2. Every maternity hospital should have a detention unit where mother and babe have individual quarters.
3. Regular nursing personnel could attend these patients, observing individual isolation technic.
4. The cost of such care would be prohibitive for practical application.
5. The mother so exposed and in labor should not be left in the infectious environment of her home.
6. The problem thus becomes a public health problem and solution will probably eventually be found by creating such detention quarters either from private philanthropic sources or from state and national sources of revenue.

CHRONIC URETHRITIS IN WOMEN

To the Editor:—Please outline the treatment for chronic streptococcus anterior urethritis in a woman. Please give prognosis.

M.D., Michigan.

ANSWER.—Chronic urethritis in the female is practically always a mixed infection; whether it started off as a specific or as a nonspecific one is of no particular importance, since secondary organisms have charge of the situation eventually, often resulting in periurethral fibrosis.

Whether the majority of the organisms are streptococci or any other organism is of no great significance.

The management of this type of urethral lesion consists essentially of gradual but progressive urethral dilation followed by an injection into the urethra of some mild antiseptic solution the equivalent of 5 per cent mild protein silver. As an adjunct to this local treatment, often the oral administration of sulfanilamide in conservative doses (i. e., 10 grains [0.65 Gm.] with 10 grains of sodium bicarbonate after each meal) for a period of two weeks may be instrumental in helping to eradicate the primary cause, but this alone will have no important influence on curing the local condition.

SNUFFING PITUITARY POWDER AND NASAL ULCER

To the Editor:—A patient is using posterior pituitary powder in the nose for diabetes insipidus. An ulceration has developed on the mucous membrane extending throughout the septal cartilage. Would you kindly let me know of any similar cases reported?

M.D., Michigan.

ANSWER.—It is not stated how the powder is being introduced into the nose. If a glass tube is being inserted directly into the nostril, it is possible that some trauma has resulted. The better way is either to blow the powder into the nose with the tube not actually in contact with the nose or to place the powder in a small paper and have the patient sniff it. There have been no recorded cases in which the powder itself has caused any trouble to the nose.

It should be determined whether or not the medication has anything to do with the ulceration. Certainly a flocculation test for syphilis should be done and any other possible cause excluded. If the physician still believes that the powder itself is responsible for this ulceration he should discontinue it for a while, during which time the patient's diabetes insipidus can be controlled with hypodermic injections of solution of posterior pituitary.

SALT IN DIET AND SALT SUBSTITUTES

To the Editor:—**If a patient eliminates sodium chloride from his daily diet completely, will he get enough salt from his food (I am thinking especially of milk, meat, fish and vegetables) to supply his needs under ordinary conditions? I realize that if he sweats profusely he will lose so much salt that it would have to be replenished. Has the value of potassium chloride as a useful and unobjectionable substitute for sodium chloride been established?**

M.D., Louisiana.

ANSWER.—The amount of sodium chloride contained in a mixed unsalted diet is adequate to supply ordinary needs. By omitting the use of salty foods and avoiding the addition of salt in the preparation of foods, the amount of sodium chloride contained in the diet can with difficulty be made less than 2 Gm., and this amount is sufficient under ordinary conditions. Potassium chloride is an unsatisfactory substitute to use for seasoning because of its metallic taste.

GOAT'S BLOOD FOR GASTRIC ULCER

To the Editor:—**Is the injection of goat's blood good for gastric ulcers?**

Leslie Randall, M.D., Licking, Mo.

ANSWER.—The inquirer enclosed a letter stating that an article on this subject had been published in the *Journal of Dairy Science*. The publishers of this journal were unable to identify the article or give us any information concerning it.

The first man to suggest the injection of animal blood for the treatment of various conditions was Bier (*Med. Welt* **8:** 1267 [Sept. 8] 1934). His theory was that the parenteral injection of disintegrated substances of the body, or indeed of any foreign organic material, would provide the most powerful stimulus for the defensive and reconstructive activities of the organism. He used two kinds of blood, sheep and beef, but gave no report on gastric ulcer.

The only possible good results that injections of goat's blood could accomplish would seem to be the questionable ones obtained from nonspecific protein therapy. According to Esterman and Balfour (The Stomach and Duodenum, Philadelphia, W. B. Saunders Company, 1936, p. 292), "nonspecific protein therapy undoubtedly affords symptomatic relief in the majority of cases, but in surgically removed ulcers there were no signs of healing in cases in which this form of therapy was employed." Felix Cunha (*Am. J. Surg.* **23:**219 [Feb.] 1934) reports favorable results with a combination of lipoproteins and emetine, known as synodal, in four cases of gastric ulcer. Cecil (THE JOURNAL, Dec. 7, 1935, p. 1846) states that "one would hardly expect protein therapy to have any value in the treatment of peptic ulcers. In view of the marked tendency of ulcers to periodic remissions and exacerbations, the results must be accepted with considerable reservation." It must not be forgotten that any treatment for peptic ulcer administered enthusiastically is likely to give temporary relief.

IONTOPHORESIS FOR ARTHRITIS

To the Editor:—**1. What is the status of iontophoresis with acetyl-beta-methylcholine chloride in the treatment of rheumatoid and other types of arthritis? 2. What voltage and milliamperage of galvanic current are used? 3. What is the percentage of the solution used and how is it made up? 4. Is there any danger of any unpleasant or serious complications arising from this type of treatment?**

M. B. Guthrie, M.D., Columbus, Ohio.

ANSWER.—In 1934 the Kovacses recommended the use of acetyl-beta-methylcholine chloride (mecholin: mecholyl) by iontophoresis as superior to iontophoresis with histamine in the treatment of rheumatoid (atrophic) arthritis; the effects of the former were more lasting, less unpleasant and more effective. By means of this method a peripheral vasodilatation lasting a few hours was produced. Of thirty patients suffering from rheumatoid arthritis, 90 per cent were "improved." Patients having osteo-arthritis were less notably relieved. About half a dozen additional reports on the effects of iontophoresis with acetyl-beta-methyl-choline chloride for rheumatoid arthritis have since appeared.

Abel treated eleven patients by this means; ten were "definitely improved." Patients having spondylitis were not relieved. Of Mathae's thirty-two patients, 72 per cent obtained "good results." Boyd, Osborne and Markson treated fifteen patients; some were benefited, several were not. Of Martin and Eaton's thirty-six patients, 57 per cent were "helped"; "some became symptom free." Of Phillips's twenty patients only two were improved and the method was abandoned as useless. Kling and Sashin insist that the vasodilatation obtained with mecholyl, and the results thereof, are much inferior to those produced by histamine.

These results certainly are not impressive. Only a few patients were treated in each series. No real control studies were instituted. Apparently some patients obtained variable degrees of temporary relief, presumably from the vasodilating effect of the drug. Cures were not obtained. From 50 to 75 per cent of arthritic patients are "relieved" by application of a wide variety of unrelated measures. When it is remembered that the results of sympathectomy, the ultimate in peripheral vasodilatation, were disappointing in the treatment of rheumatoid arthritis, one should not expect much from methods which provide such transient vasodilatation.

Although no adequate comparison between results obtained by mecholyl iontophoresis and ordinary physical therapy has been made, it does not seem to be proved that treatment by iontophoresis with drugs is preferable to the simpler, less elaborate and less expensive methods of physical therapy which can be used in the physician's office and continued daily in the patient's own home.

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CONTACT DERMATITIS FROM TETRA-ETHYL GASOLINE

To the Editor:—**Following contact with a standard brand of gasoline containing tetra-ethyl lead (one of the so-called premium grades), a filling station operator complained of an erythematous papular rash on the areas of contact (hands). The lesion was itchy and progressed to a diffuse inflammatory type, the papules becoming confluent within several days. Patch tests with this and with another brand of leaded gasoline gave similar reactions; there was no reaction to ordinary gasoline which did not contain tetra-ethyl lead. There are no indications of systemic lead poisoning. Treatment to date has included avoidance of the irritant, intravenous sodium thiosulfate and local application of calamine lotion. There has been no improvement. The patient's past history includes no known allergic conditions. As I am unable to find anything regarding contact dermatitis due to this cause in the literature available to me, any information you can give me regarding its incidence and treatment will be appreciated.**

M.D., Minnesota.

ANSWER.—Contact dermatitis attributed to tetra-ethyl lead in ethyl gasoline has not often been reported. However, a case similar to this one is reported by David W. Johnson under the title "Dermatitis Caused by Ethyl Gasoline" in the *Archives of Dermatology and Syphilology* (**28:**174 [Aug.] 1933).

Tetra-ethyl lead ($Pb[C_2H_5]_4$) is sold in the form of ethyl fluid, a mixture of from 60 to 75 per cent of tetra-ethyl lead with a solvent such as carbon tetrachloride, trichloroethylene or ethyl dibromide, all of which substances are poisonous. When applied to the skin, tetra-ethyl lead is readily absorbed and if applied in sufficient quantity will produce lead poisoning. It is corrosive to the skin only after prolonged contact and is added to gasoline only in the proportion of about 1:1,000 to 1:1,400. Hence, in order for tetra-ethyl lead to be the cause of dermatitis due to contact with ethyl gasoline, extreme hypersensitivity to it must be present. The fact that the patient shows no symptoms of lead poisoning indicates that there was but little exposure.

The cases of systemic lead poisoning reported in the literature as caused by tetra-ethyl lead do not mention any cutaneous lesions except itching.

Dermatitis due to ordinary gasoline has often been reported, and that gasoline is capable of causing sensitization is shown by J. B. Biederman in his article "A Case of Contact Dermatitis Produced at a Distance by a Sensitizing Agent" (THE JOURNAL, June 27, 1936, p. 2236). The unusual part of both Dr. Johnson's report and this one is that patch tests with ordinary gasoline gave no reactions. It is generally experienced that patch tests with undiluted gasoline left on the skin for twenty-four hours always cause a blister, even on normal persons. As a result of this it is recommended that, in order to test for sensitivity to gasoline, patch tests be done with equal parts of gasoline and olive oil.

If the patient is sensitive only to ethyl gasoline, removal of contact with it for several months should clear up the eruption.

However, the patient may be polysensitive, and it is suggested that patch tests with other substances with which he comes in contact be performed.

The use of soothing applications, such as calamine lotion, is proper local treatment for contact dermatitis. Since it is stated that the patient shows no indications of systemic lead poisoning, the use of intravenous sodium thiosulfate would be purely empirical.

QUININE AND ATABRINE IN MALARIA

To the Editor:—**What is the present opinion regarding the simultaneous treatment of malaria with quinine and atabrine? Can they be used together safely in full doses? If not, is it good practice to use them together at all and in what suggested dosages? Is there more danger in using them together in cerebral cases?** M.D., Siam.

ANSWER.—Quinine and atabrine can be safely used simultaneously. There is neither pharmacologic nor clinical evidence of any antagonism between these two malaricidal drugs. For oral administration the full therapeutic dose of each may be prescribed for the first five days of treatment, i. e. 10 grains (0.65 Gm.) of quinine and 1½ grains (0.1 Gm.) of atabrine each, three times a day. This is followed by the administration of 10 grains of quinine daily for from three to five weeks or atabrine in 1½ grain amounts three times a day for four or five days. Some physicians believe that this combined therapy is more efficacious than quinine or atabrine alone. However, in some cases the combined treatment fails to eradicate the plasmodia. In comatose patients and in infections in which the circulating blood is loaded with trophozoites and schizonts, intramuscular injection of the two drugs can be safely employed simultaneously. For the first two or three days 8 grains (0.5 Gm.) of quinine dihydrochloride in 4 cc. of distilled water or physiologic solution of sodium chloride and 3⅓ grains (0.2 Gm.) of atabrine dihydrochloride or atabrine musonate in 10 cc. of distilled water are administered two or three times a day. Beginning with the fourth day, atabrine is given by mouth in the usual amounts for four or five days. In cases of delirium, collapse or coma, either quinine dihydrochloride or atabrine dihydrochloride can be utilized intravenously to reduce the critical symptoms, but the wisdom of giving the two drugs by vein during the same crisis is seriously questioned.

CELIAC DISEASE

To the Editor:—**I should like to take exception to several of the statements given in The Journal May 27 in response to a query on celiac disease. It was stated that the fats are at fault. This idea is held by many eminent pediatricians but is unfortunately incorrect. Although there is a low tolerance for fats, this is due to the fact that there is no available carbohydrate for their metabolism. The large fatty stools that are present in celiac disease are misleading. It has been shown in the human subject that under certain conditions even on a fat free diet there can be an excess of fatty acids in the stool. Treatment is wholly dietary; milk as such or as buttermilk or lactic acid milk must be excluded. In its place protein milk should be used either powdered or prepared in fluid state, or milk and water, equal parts, plus calcium caseinate brought to a boil. Carbohydrates in the form of sugar, pastry, bread, cereals, candy and syrups must be rigidly excluded. Carbohydrates may be used in the form of ripe bananas in unlimited quantities, and later in the treatment other fruits and vegetables, with the exception of potato, may be carefully tried. Unsweetened fruit juices are usually well borne. Meat, egg white and cottage cheese may be used in any desired quantity. Vitamin D is the only vitamin that is low in the celiac diet and should be used only in a highly concentrated form. Experience has shown that a strict diet carried out for less than one year may result in relapse later. After twelve months of the diet an attempt may be made to introduce a cereal or bread; if no ill effects follow within three months whole milk may be introduced, and if at the end of the second three months all is well the patient is cured and no relapse will occur from any cause. If, however, there should have been a recurrence of symptoms within the three months period, the offending material in the diet should be withdrawn at once and another three months period allowed to elapse before being tried again. It will be found that sooner or later the forbidden foods can be tolerated. Iron in some form should be used. There is no objection to calcium; but the celiac diet is rich in calcium. Liver extract parenterally as Rhoads uses it in sprue is decidedly helpful. Prognosis is excellent, recovery is complete, future health, strength and stature are normal. A normal diet can be taken without gastrointestinal disturbance.**

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Sidney V. Haas, M.D., New York.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, August 19, page 707.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Medical centers having five or more candidates desiring to take the examination, Sept. 11-13. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th Street, Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: An Affiliate of the American Board of Surgery. *Oral.* Part II. Philadelphia, Oct. 14-15. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Written.* Various large cities in the country, Oct. 9. *Applications must be received by the Secretary by Sept. 1. Oral.* Philadelphia, Nov. 3-4. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Various sections of the United States, Feb. 19. Formal application must be received on or before Jan. 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written examination and review of case histories (Part I) for Group B candidates* will be held in various cities of the United States and Canada, Jan. 6. *Applications for admission to Group B, Part I, examinations must be on file not later than Oct. 4. General oral and pathological examinations (Part II) for all candidates (Groups A and B)* will be conducted in Atlantic City, N. J., June 8-11. *Applications for admission to Group A, Part II examinations must be on file not later than March 15.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Written. Various cities of the United States and Canada, March 9. Oral. New York, June 10. *Formal applications must be received before Jan. 1.* Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Boston, January. *Applications must be filed on or before Nov. 1.* Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 6-7. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Memphis, Nov. 22-23. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: New York, April 30 and May 1. Kansas City, Mo., preceding the Region III meeting of the American Academy of Pediatrics. Seattle, preceding the Region IV meeting of the American Academy of Pediatrics. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, December. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlanta, Ga., Dec. 9-11. Sec., Dr. Byrl R. Kirklin, 102-110 Second Avenue S.W., Rochester, Minnesota.

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 9-11. (The only examination session to be held in 1940.) *Case reports must be submitted not later than November 9.* Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Kentucky June Examination

Dr. A. T. McCormack, secretary, State Board of Health of Kentucky, reports the written examination held at Louisville, June 7-9, 1939. The examination covered eleven subjects and included 110 questions. An average of 70 per cent was required to pass. Eighty-three candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
School of Medicine of the Division of the Biological Sciences		(1937)	83
University of Louisville School of Medicine		(1938)	90,
(1939) 77, 77, 77, 78, 78, 79, 79, 79, 79, 79, 79, 79, 79, 80, 80, 80, 80, 80, 80, 80, 80, 80, 81, 81, 81, 81, 81, 81, 81, 82, 82, 82, 82, 82, 82, 82, 83, 83, 83, 83, 83, 83, 83, 83, 83, 84, 84, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 86, 86, 86, 86, 88, 88, 88, 88			
Harvard Medical School		(1937)	80
Duke University School of Medicine		(1937)	82
University of Tennessee College of Medicine		(1939)	79, 79
Vanderbilt University School of Medicine		(1939)	83
Medical College of Virginia		(1938)	81

Ten physicians were licensed by reciprocity and two physicians were licensed by endorsement from May 18 through July 22. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University School of Medicine		(1936)	Louisiana
University of Illinois College of Medicine		(1936)	Illinois
Tulane University of Louisiana School of Medicine		(1935)	Mississippi
University of Cincinnati College of Medicine		(1937), (1939)	Ohio
Western Reserve University School of Medicine		(1935)	Ohio
University of Tennessee College of Medicine		(1933)	Tennessee
Vanderbilt University School of Medicine		(1936, 2)	Tennessee
Marquette University School of Medicine		(1933)	Wisconsin

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Rochester School of Medicine		(1933)	N. B. M. Ex.
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England		(1935)	N. B. M. Ex.

Book Notices

The Principles and Practice of Ophthalmic Surgery. By Edmund B. Spaeth, M.D., Associate Professor of Ophthalmology in the Graduate School of Medicine of the University of Pennsylvania, Philadelphia. Cloth. Price, $10. Pp. 835, with 1,035 illustrations. Philadelphia: Lea & Febiger, 1939.

In the review of as comprehensive a textbook as this, it seems more important to tell the reader what is in the book rather than write a polemic on the differences of opinion of the author and the reviewer. Here is a new textbook, covering the standard principles and practices of ophthalmic surgery with but few omissions. Adopting a somewhat different form from the usual, the author properly devotes more time and space to adequate discussion of indications for operation and to thorough descriptions of after-care and complications than to mere technical statements of operative procedures. It is an elaboration of the method used so successfully by Elschnig in the "Operationslehre" of the Graefe-Saemisch Handbuch. Each aspect has an adequate bibliography, starting wisely about where the Elschnig book left off, thus not confusing the reader with extensive references to the older and now abandoned methods. There are twenty-six chapters in the book, covering anesthesia and surgical technic, surgery of the eyeball and ocular adnexa, reconstructive and corrective plastic surgery of the eyelids, and the surgery of special conditions, such as glaucoma and retinal detachment. A careful cross index of authors as well as of general material simplifies the use of the text. Naturally different values would be assigned to various chapters, according to the different views of readers. But all will undoubtedly agree that the parts devoted to plastic surgery are particularly good, although the standard is kept uniformly high throughout. Nearly all the illustrations are black and white. Especially excellent and understandable are the diagrams. Unfortunately, the close-ups of the actual eye do not mean much and will undoubtedly be replaced in the next edition, which the demand will surely require. The full face or head views are much better. By and large, we have a new textbook on surgery of the eye, well written and of unquestionable value to all ophthalmologists performing operative work in that special field. The reader is given the opportunity of digesting opinions of various surgeons on various procedures, including those of the author based on his own extensive experience. Thus to the man of limited experience the book is of exceptional value.

Éléments d'embryologie. Par A. Celestino da Costa, professeur d'histologie et d'embryologie à la Faculté de médecine de Lisbonne. Paper. Price, 120 francs. Pp. 494, with 386 illustrations. Paris: Masson & Cie, 1938.

This is a textbook on embryology in all its biologic aspects. It is modeled on the Traité of Brachet, adapted for the use of medical students by the omission of detail and, in the section on organogenesis, by emphasis on the conditions in man. The preface says "The object is to present to students the elements of embryology which they need not only for a better understanding of normal and abnormal anatomy and physiology but also for their general culture" and "pour la formation de leur esprit biologique." These ends are admirably achieved. It has the clear logical arrangement so characteristic of the French, and the style is often sparkling and picturesque. On page 255 one reads that "l'oeuf devient sensible à la présence d'un génome d'une autre espèce." In the first section the gametes are considered and the embryologic aspects of heredity—a feature too often neglected in medical courses. The second section presents the general aspects of vertebrate embryology and leads up to the recent experimental analyses of the factors concerned in the orderly sequence of events in development. The old ideas of three germ layers with totally different and fully determined potencies is thoroughly disposed of. In the section on organogeny there is no effort to make the student familiar with the anatomy of a series of embryos; models and reconstructions are used sparingly. Most of the illustrations are taken from the author's own mammalian series. Histogenesis, which rarely means much to the student, is not considered in any detail. On the other hand, every opportunity is taken to stress fundamental features, as in the chapters on cranial nerves and the urogenital system. The author's knowledge of the literature is cosmopolitan and in most respects abreast of the time. One can object to the inclusion of old data in the table of ossification centers, since our ideas of the age of embryos have been considerably modified since the days of Wilhelm His. In general this table gives an appearance of exactness which is necessarily fictitious. The use of old reconstructions of the embryonic vascular system is unfortunate. Enough is known now of the anatomy of young human embryos for one to say confidently that Eternod's reconstruction of the vessels in his embryo "Vieul" was a rather forced interpretation of the irregular capillary net present at that stage.

Wide Road Ahead: The Story of a Woman Bacteriologist. By Anne B. Fisher. Cloth. Price, $2.50. Pp. 276. New York: E. P. Dutton & Co., Inc., 1939.

This book is a slight thing which is either autobiographical, as suggested in the dust cover blurb, which says that the author "herself has lived through all the experiences she describes," or fictitious, as indicated in a note facing chapter 1, which says "All characters in this book are fictitious. Any resemblance to a living person is a coincidence." It is a story of a young woman bacteriologist who overcomes in Horatio Alger best success story fashion the handicaps of her youth, her sex, the skepticism of ranchers who cannot visualize a female "bug doctor," the limitations of official red tape and numerous other obstacles. She starts out with a passionate devotion to bacteriology and performs many wonderful feats, including the teaching of doctors to abandon their old fashioned methods and use pneumonia typing and serum therapy. In the process of overcoming baseless prejudice against her youth and sex she humiliates an older bacteriologist, outwits the community skinflint, becomes involved in a tong war and escapes being murdered by a man whose sweetheart's stomach she analyzes after the lady is found dead at the scene of an alcoholic brawl. Not so good!

Über die Resultate der Diabetesbehandlung in Finnland. Von Eero Ponteva. Acta medica scandinavica, Supplementum 88. Paper. Pp. 108. Stockholm, 1938.

An excellent review of diabetic therapy, particularly since the introduction of insulin occupies the first chapter, but the monograph is of chief interest because of the careful statistical studies concerning the patients themselves. Eighty-six patients formed a group before and 645 after insulin was begun and the latter comprised patients treated between October 1923 and July 1936 in the second medical clinic of the University of Helsinki. Whereas 19 per cent of the eighty-six patients treated before the employment of insulin died in the clinic, the mortality among 645 patients later treated in the clinic was only 6.8 per cent. Coma fell from 81 per cent in the former to 27 per cent in the latter. In fact, of the thirteen patients in actual coma and in precoma before the use of insulin all died and only 24 per cent of those after it was begun. Before insulin the ratio of the number of diabetic patients to the total number of patients in the clinic was 2.1 per cent but later rose to 7.9 per cent and yet the duration of stay fell from 6.7 to 3.9 weeks. On the date of the completion of the survey, Sept. 1, 1936, of all the cases since discharge from the hospital, 51 per cent of the insulin treated patients were living, 46.4 per cent dead, and 2.6 per cent untraced. The cause of death of the fatal cases in 45.1 per cent was diabetes; pulmonary tuberculosis claimed 18.8 per cent, and circulatory disease 15.3 per cent. The average age in the fatal cases at death was 44.4 years and the duration of the diabetes on the average four years. Mortality in general varied little with the age of the patients, but the duration of the disease rose with the age. Thus, among young people the duration of the disease was three years, among patients in middle age three years and ten months, and with old people five years and one month. Mortality varied with the localities from which the patients came. Thus, in Helsinki it was 28 per cent, in the provincial cities 32.7 per cent, and in the country districts 48.5 per cent. Mortality likewise depended on financial circumstances and on the degree of education of the patient. It was 43.1 per cent for

workmen, 58.8 per cent for peasants and only 33.9 per cent for the educated class. Workmen succumbed to diabetes in 22.9 per cent, peasants 31.9 per cent and only 5.3 per cent of the educated. The duration of life of the patients similarly varied but really was surprisingly small. Thus, among workmen it was three years and five months, peasants three years and ten months, and the educated class five years and four months. Disregard of diet occurred frequently, and 45 per cent totally gave it up and the cause in 46.8 per cent of all cases was lack of funds and in 34.3 per cent the impossibility of securing enough vegetables. Only 9.6 per cent of the workmen reported obtaining sufficient vegetables. On the other hand, only eight of the 184 patients taking insulin lacked it, and four of these because of doctors' advice. Assistance in securing insulin was given to 33.9 per cent of the patients. Excellent health characterized 30.8 per cent of the 266 patients who answered the question and 63.2 per cent were able to carry on their work, whereas 28.9 per cent sought lighter labor and 7.9 per cent were completely disabled, although in only 3.8 per cent was this due primarily to the diabetes itself. Among the educated class 76 per cent were able to carry on completely, but among the workmen and peasants the figure was 57 per cent. Whether or not the patient followed diet had little to do with his ability to work. Even of the patients recovering from coma, 60 per cent were able to follow their occupations.

Alice in Virusland. By Paul F. Clark, Professor of Bacteriology, University of Wisconsin Medical School, Madison. [Reprinted from the Journal of Bacteriology, September 1938.] Boards. Price, $1. Pp. 23, with 5 illustrations. Madison: I. L. Baldwin, Agric. Hall, Univ. of Wis., 1938.

Professor Clark takes a germ's eye view of the human race and utilizes the occasion of his presidential address to the Society of American Bacteriologists to express an opinion which is far from favorable. Paraphrasing Alice in Wonderland, he takes Alice by virtue of a shrinking potion into Virusland, where she gets an unvarnished opinion of the human race from the microscopic creatures. This is effectively summed up by a verse from a poem "The Coccus and the Spirochaete":

> "Should we permit," the Coccus asked,
> "These silly beasts to thrive,
> Who call themselves the lords of earth
> Yet selfishly connive
> Freedom, dignity and peace
> From many lands to drive?"

It is an extraordinarily clever and stimulating, though pessimistic, production. The epilogue, which the author refrained from reading at the annual banquet because it was "thought to be in harmony with the philosophy of the paper but not with the spirit of the Annual Banquet," is a quotation from Epictetus: "He who remembers what man is can be discontented at nothing which happens."

Schafer's Essentials of Histology Descriptive and Practical for the Use of Students. Edited by H. M. Carleton, M.A., B.Sc., D.Phil. Fourteenth edition. Cloth. Price, $5. Pp. 618, with 665 illustrations. Philadelphia: Lea & Febiger, 1938.

The popularity of this English book is attested by its many editions since it first appeared, fifty-three years ago, under the authorship of the late Professor Sharpey-Schafer. In this country it would seem inevitable that the book would have to contend with serious competition by better American textbooks of histology. As compared with earlier editions, the general character of the book is the same except that some older illustrations have been replaced. The text is profusely illustrated but the uneven quality of the illustrations produces a somewhat disturbing impression. A great many original and rather old illustrations by Sharpey-Schafer and other early anatomists (Henle, Waldeyer, Retzius, Hering, Kölliker, Ranvier, Schwalbe, Schultze) alternate with reproductions of photomicrographs. The quality of the latter is often unsatisfactory, and it may be doubted whether they are of value in presenting good structural details. Today we are used to expect excellent illustrations in any textbook dealing with morphologic sciences. Many of the illustrations pertain to animal rather than to human tissues. The text of the fifty chapters is exceedingly brief and often incomplete. This may be justified by the scope and title of the book. One might ask, however, why only the least defensible theory on the origin of the lymphatic system is mentioned, why the corpus haemorrhagicum is not described as such or why the origin of the parathyroids and of the thymus is reported to be from the "third and fourth branchial clefts" rather than from the corresponding pharyngeal pouches. The book is written for the use of students. It would appear to be suitable for a general course in colleges rather than for medical students. There is an appendix on histologic methods and a good index.

Common Happenings in Childhood. By Sir G. Frederic Still, K.C.V.O., M.A., M.D., Physician Extraordinary to H. M. The King. Cloth. Price, $1.75. Pp. 180. New York & London: Oxford University Press, 1938.

A pediatrician of standing, widely recognized as the best type of family practitioner, contributes here his views on crying, laughing, temper, tiredness, appetite, fears and antipathies, sleep and school. He tells his story with numerous references to actual cases, to history, to literature and to life. His is the wisdom of years of practice, and as a result this is one of the most sensible books available on the subjects that it concerns.

La médecine d'urgence: Symptômes, diagnostic, traitement immédiat, formulaire. Par le Dr. J. Oddo. Introduction du Professeur Grasset. Ouvrage couronné par l'Académie de médecine (Prix Itard 1915). Seventh edition. Paper. Price, 120 francs. Pp. 839. Paris: G. Doin & Cie, 1939.

This book deals with medical emergencies. The author, obviously a master of descriptive art as well as a physician of wide clinical experience, has succeeded in producing a medical classic. Urgent medical problems are portrayed vividly, enabling the reader to visualize a patient in the actual grip of the emergency under discussion. A more concise description of relatively minor manifestations, the mechanisms underlying these features and possible variations then follows. Differential diagnosis is discussed from the point of view of the physician confronted by the emergency, thus furthering the decidedly clinical implication of the book. The subject matter begins with emergencies of the respiratory tract and includes croup, asthma, pulmonary embolus or hemorrhage, hemoptysis, acute pulmonary edema, pneumothorax, copious expectoration from rupture of a suppurating area into a bronchus, and thoracic pain. The vivid clinical description of each condition is followed by a detailed discussion of the immediate treatment, but prevention, management of complications and surgical intervention, when necessary, are not neglected. A similar pattern is followed for diseases of the circulatory, digestive, renal and nervous systems, and a chapter is devoted to gout, cerebral rheumatism, diabetic coma and pernicious malaria. The book closes with a brief chapter on the accidents produced by the arsphenamines and one on poisons. The reader will be fascinated by the author's description of disease pictures and will gain an excellent impression of the French point of view. Some of the ideas, however, either have been discarded in this country or have never gained a secure foothold here. This pertains particularly to therapy, notable examples being the rather frequent employment of bleeding, cupping and the use of counterirritants. A more significant fault is the failure to lay adequate emphasis on the value of mercurial diuretics in the treatment of severe edema. These and other differences of opinion do not minimize the value of this section of the book, as there are many suggestions which the physician will do well to remember.

Positioning in Radiography. By K. C. Clark, Radiographer-in-charge, Ilford Limited Radiographic Technical and Demonstration Department, London. Cloth. Price, $28. Pp. 482, with 1,190 illustrations. St. Louis: C. V. Mosby Company, 1939.

This is the most elaborate book on roentgenographic technic ever published. The paper is excellent. The presswork is impeccable. The illustrations are balanced between photographs and drawings of an instructive character and an adequate number of roentgenograms showing the results which appear in the roentgenographic film. An extraordinary amount of preparatory work was undertaken to produce this master guide to roentgenographic technic. The price is not excessive, considering the magnificence of the illustrations, the carefully worded descriptive text and the accurately detailed instruction as to the exposure factors. It is hardly possible to speak in terms of too much praise for this beautiful volume.

The Circulation of the Brain and Spinal Cord: A Symposium on Blood Supply. The Proceedings of the Association, New York, December 27th and 28th, 1937. Editorial Board: Stanley Cobb, M.D., Chairman, Angus M. Frantz, M.D., Wilder Penfield, M.D., and Henry A. Riley, M.D. Association for Research in Nervous and Mental Disease, Vol. XVIII of a Series of Research Publications. Cloth. Price, $10. Pp. 790, with 282 illustrations. Baltimore: Williams & Wilkins Company, 1938.

This volume includes the papers presented at the meeting of the Association for Research in Nervous and Mental Disease which met in New York, Dec. 27 and 28, 1937. There are twenty-six separate papers, or chapters, and a critical discussion of the entire symposium by Dr. Stanley Cobb. The subject matter has been divided into three sections: (1) anatomy and physiology, (2) pathology and (3) clinical contributions. Although much of the material is not new and most of it has been presented in separate publications elsewhere, this volume will prove of particular value for ready reference and to persons who do not have good library facilities available. Chapter IV, "The Capillary Bed of the Paraventricular and Supra-Optic Nuclei of the Hypothalamus," by K. H. Finley, is well prepared and most interesting. Finley has shown that these nuclei have a capillary bed which, except for a nucleus in the brain stem, is more dense than any other region of the central nervous system. This is undoubtedly of considerable functional significance. Chapter V on "The Cerebral Vessels studied by Angiography," by A. R. Elvidge, is undoubtedly the best presentation of the subject of cerebral arteriography available in English. Chapter VII, "The Innervation of the Intercranial Blood Vessels and Dural Sinuses," by F. L. McNaughton, is a full and useful presentation. Chapter X, "The Action of Chemical Substances on Cerebral Blood Vessels," by C. F. Schmidt and J. P. Hendrix, is worthy of careful study by all who are interested in the subject of cerebral circulation. Chapter XII, "The Influence of Circulation on the Activity of Nerve Cells," by D. W. Bronk, and chapter XIII, "Brain Metabolism and Circulation," by R. W. Gerard, indicate the importance of the circulation for the maintenance and alteration of nervous activity. Chapter XIV, "Focal Alterations in Subcortical Circulation Resulting from Stimulation of the Cerebral Cortex," by von Santha and Cipriani, describes a series of experiments which demonstrate that localized electrical stimulation of the cerebral cortex is associated with sharply localized vasodilatation in the related subcortical centers. The caudate nucleus, the thalamus and the geniculate bodies were studied. These experiments confirmed the localized projection of the various nuclei of the thalamus as established by the physiologic studies of Dusser de Barenne and the anatomic studies of Le Gros Clark and of Walker. In chapter XXI, Soma Weiss presents a thorough review of the physiology of the carotid sinus mechanism and its clinical significance. Chapter XXII, "The Circulation of the Epileptic Brain," by Wilder Penfield, presents this author's extensive experience with the vascularity of such brains as observed at operation. The observations of Graham and Wolff in chapter XXIII on the mechanism of migraine headache are important in the study and understanding of this obscure condition. The concluding discussion by Dr. Cobb will prove of value not only in summarizing and crystallizing the material presented but in a critical evaluation of it as well. This chapter adds greatly to the value of the book. A footnote by Dr. Cobb, to be found on page 728, is worthy of preservation and fuller circulation: "Physics, anatomy, physiology and neurology are merely convenient administrative terms used to designate certain departments in a university. To believe that such terms have any biological significance is to surrender to the academicians! Biological data should not be classified departmentally; the facts apply to living organisms and may have significance for many departments of science."

Preclinical Medicine: Preclinical States and Prevention of Disease. By Malford W. Thewlis, M.D., Attending Specialist, General Medicine, United States Public Health Hospitals, New York City. Cloth. Price, $3. Pp. 223, with 12 illustrations. Baltimore: William Wood & Company, 1939.

In the preface, Dr. Thewlis grants that there is no clearcut demarcation between clinical and preclinical medicine and, of course, that is evident throughout the book. A rather disappointing feature is the inclusion everywhere of so much material regarding disease prevention. Of course there is no subject more important than disease prevention, but this is supposed to be a book on preclinical medicine. The author evidently wants to get a vast amount of information before his readers. One result of this is a short, jerky style which may be forgiven, but it leads to such short, snappy sentences as "The next worldwide epidemic of influenza is expected in 1948." There is no word of explanation or any connection with anything except the general subject of influenza. Every pioneer makes the way easier for the next comers. Dr. Thewlis is actually pioneering in preclinical medicine. There are certainly preclinical states in medicine and they are certainly of great importance. The next books will be better because Dr. Thewlis has had the courage to make the beginning.

Children with Delayed or Defective Speech: Motor-Kinesthetic Factors in Their Training. By Sara M. Stinchfield, University of Southern California, and Edna Hill Young, Principal, Hill-Young School of Speech, Los Angeles, California. Cloth. Price, $3. Pp. 174, with illustrations. Stanford University, California: Stanford University Press; London: Oxford University Press, 1938.

Here is a technical work on delayed speech development and the practical therapy for overcoming it used in the Hill-Young School of Speech. In the therapy, interest is centered on speech movements and word patterns. The appendix provides numerous illustrations showing what is meant by this technic.

So You're Going to Stop Smoking! By J. C. Furnas. Second edition. Cloth. Price, $1.25. Pp. 97. New York: Simon and Schuster, 1939.

The author, who is neither a physician nor a psychologist, collected information about smoking by sending letters to a number of celebrities asking them about the smoke habit. He has collected also a good deal of data both from physicians and from medical literature on smoking and what it does to you and for you. In an appendix are some choice sentences chosen from some of the questionnaires and an abstract of replies. Some of these data are interesting. It is interesting to know that John Charles Thomas chewed tobacco, that Henry L. Mencken has 100 pipes, that Rupert Hughes smokes incessantly while awake and that most celebrities haven't the slightest idea what they like about smoking but a lot of them know what they dislike.

On and Off the Campus. By Guy Stanton Ford. With a biographical introduction by George E. Vincent. Cloth. Price, $4. Pp. 511, with portrait. Minneapolis: The University of Minnesota Press; London: Oxford University Press, 1938.

This volume was published to honor Dean Ford's twenty-fifth anniversary as head of the graduate school of the University of Minnesota. There is an introductory biographic sketch in appreciation by Dr. George E. Vincent. The collected writings included are divided into essays having to do with Dr. Ford's contributions as a publicist, historian, educational administrator and editor. The editorials are reprinted from Sunday editions of the Minneapolis *Journal*, except the one which appeared in the St. Paul *Pioneer Press*. They are written in substantial, direct English and they are inspiring. Some of them are witty and the wit penetrates.

Sir Kenelm Digby: Writer, Bibliophile and Protagonist of William Harvey. By John F. Fulton, M.D. Cloth. Pp. 75, with 7 illustrations. New York: Peter & Katharine Oliver, 1937.

This paper was read before the Grolier Club in April 1937. It is artistically printed and handsomely illustrated and concerns a great literary figure who was also a physiologist and a philosopher. He was among the first to appreciate the importance of the discovery by William Harvey of the circulation of the blood and he was a strong advocate of that doctrine. The volume is printed in a special edition of only 300 copies and should be a prize to have in the library.

The Wisdom of the Body. By Walter B. Cannon, M.D., Sc.D., LL.D., George Higginson Professor of Physiology, Harvard Medical School, Boston. Second edition. Cloth. Price, $3.50. Pp. 333, with 40 illustrations. New York: W. W. Norton & Company, Inc., 1939.

The first edition of this book was published in 1932. The present is a revised and enlarged edition, in which a report of additional researches, particularly all the work on homeostasis, is included. The volume is written with the quality, the accuracy and the thoroughness that have always characterized Dr. Cannon's contributions.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Pneumonia Attributed to Trauma; Selection of Physician by Employee.—The plaintiff, during the course of his employment, received a blow on his chest. Pneumonia and empyema ensued. Contending that his disability was due to the blow on his chest, the plaintiff brought proceedings under the workmen's compensation act of Michigan. The commission awarded compensation and the defendant company appealed to the Supreme Court of Michigan.

In the proceedings before the deputy commissioner, the plaintiff testified that after the accident his side bothered him a good deal and at noon on the day following the accident he went to the defendant's first aid man, who examined him with a stethoscope and put adhesive tape around his chest. The following day, Friday, the factory was closed and the plaintiff remained at home. On Saturday the plaintiff summoned a physician who pronounced the plaintiff's ailment as pneumonia and removed him to a hospital, where he remained for four months and five days. On Tuesday following the plaintiff's hospitalization, the defendant's foreman received a report from one of his men that the plaintiff was in the hospital. Although the attending physician testified that he had never seen another case of traumatic pneumonia, he attributed the plaintiff's illness to the injury and, on cross-examination, he quoted from various medical textbooks in support of this diagnosis. A physician who assisted in the treatment of the plaintiff confirmed the diagnosis, although he too had never previously attended a case of traumatic pneumonia. The defendant's medical expert witnesses claimed that the pneumonia did not result from any injury as there were no visible evidences of contusions or abrasions on the plaintiff's chest. After reviewing the testimony of these witnesses, the Supreme Court concluded that there was evidence to support the commission's finding of a causal connection between the injury and the subsequent pneumonia and that the presence of such evidence precluded the court from disturbing the finding.

The appeal raised the question as to the defendant's liability for any medical and hospital expenses in connection with the case. The workmen's compensation act of Michigan provides that during the first ninety days after an injury the employer shall furnish, or cause to be furnished, reasonable medical, surgical and hospital services and medicines when they are needed. The defendant claimed that no request was made that it furnish medical care and hospitalization, that it had insufficient notice of the plaintiff's need for such care and that therefore no liability arose under the act. The defendant, the court said, had prompt notice of the fact that the plaintiff claimed that an accident had occurred and, several days later, the company was informed that the plaintiff was in the hospital. The commission found that, on the Saturday prior to the plaintiff's hospitalization on Sunday, his condition was very serious and that immediate medical care was required. The commission concluded that an "emergency" existed, which dispensed with any requirement of notice to the employer, relying on *Gage* v. *Board of Control of State Hospital*, 206 Mich. 25, 172 N. W. 536, 7 A. L. R. 533. The Supreme Court, however, pointed out that the "emergency" rule of the *Gage case* required more than that the plaintiff's situation be an urgent one. To excuse notice, it must appear that the circumstances are such that there will be an additional delay, dangerous to the life or health of the employee, if efforts are made to contact the employer and afford him an opportunity to furnish the needed medical care.

In the present case, the plaintiff was not admitted to the hospital until some time following his attending physician's diagnosis of pneumonia. There was no showing by the plaintiff that his employer could not have been informed of his needs without causing any dangerous additional delay or that any such delay would have been involved in giving the employer the opportunity of selecting a hospital and removing the plaintiff to it. The defendant company had no knowledge of the plaintiff's hospitalization until three days after his admittance and, the court said, it cannot be held liable for expenses incurred prior to notification thereof, except that the plaintiff was entitled to the reasonable cost of a consultation with his private physician. The notice that the defendant did receive was sufficient, even though no request was made for medical services, to hold the defendant liable for the expenses incurred by him subsequent to such notification, there being no showing by the defendant that a change in hospital facilities and physicians could not have been made had defendant offered such services. The employee who requires medical attention is presumably not in the best condition to protect his interests and he should not be required to take the initiative and request the employer to supply his medical needs. It is a sufficient burden on the employee, and sufficient protection to the employer, to require that the latter receive notice of the accident and of the fact that the employee is receiving medical attention, in order to charge the employer with medical expenses under the workmen's compensation act.

The case was therefore remanded, with direction to amend the order of award to exclude the items for medical and hospital expense incurred prior to the notification received by the employer.—*McLean v. Eaton Mfg. Co. (Mich.), 282 N. W. 150.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Oto-Laryngology, Chicago, Oct. 8-13. Dr. William P. Wherry, 107 South 17th St., Omaha, Executive Secretary.

American Association for the Study of Neoplastic Diseases, Washington, D. C., Sept. 7-9. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 7-9. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.

American Association of Railway Surgeons, Chicago, Sept. 11-13. Dr. Daniel B. Moss, 547 West Jackson Blvd., Chicago, Secretary.

American Clinical and Climatological Association, Saranac Lake, N. Y., Oct. 9-11. Dr. Francis M. Rackemann, 263 Beacon St., Boston, Secretary.

American College of Surgeons, Philadelphia, Oct. 16-20. Dr. Frederic A. Besley, 40 East Erie St., Chicago, Secretary.

American Congress of Physical Therapy, New York, Sept. 5-8. Dr. Richard Kovacs, 2 East 88th St., New York, Secretary.

American Public Health Association, Pittsburgh, Oct. 17-20. Dr. Reginald M. Atwater, 50 West 50th St., New York, Executive Secretary.

American Roentgen Ray Society, Chicago, Sept. 19-22. Dr. Carleton B. Peirce, Royal Victoria Hospital, Montreal, Canada, Secretary.

American Society of Anesthetists, New York, Oct. 12. Dr. Paul M. Wood, 745 Fifth Ave., New York, Secretary.

Clinical Orthopaedic Society, Little Rock, Ark., and Oklahoma City, Oct. 13-14. Dr. H. Earle Conwell, 215 Medical Arts Bldg., Birmingham, Ala., Secretary.

Colorado State Medical Society, Colorado Springs, Oct. 4-7. Mr. Harvey T. Sethman, 537 Republic Bldg., Denver, Executive Secretary.

Indiana State Medical Association, Fort Wayne, Oct. 10-12. Mr. Thomas A. Hendricks, 23 East Ohio St., Indianapolis, Executive Secretary.

Kentucky State Medical Association, Bowling Green, Sept. 11-14. Dr. Arthur T. McCormack, 620 South Third St., Louisville, Secretary.

Michigan State Medical Society, Grand Rapids, Sept. 18-22. Dr. L. Fernald Foster, 311 Center Ave., Bay City, Secretary.

Mississippi Valley Medical Society, Burlington, Iowa, Sept. 27-29. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Nevada State Medical Association, Reno, Sept. 22-23. Dr. Horace J. Brown, 120 North Virginia St., Reno, Secretary.

North Pacific Society of Internal Medicine, Vancouver, B. C., Sept. 1-2. Dr. Lester J. Palmer, 1115 Terry Ave., Seattle, Secretary.

Oregon State Medical Society, Gearhart, Sept. 6-9. Dr. M. L. Bridgeman, 1020 S.W. Taylor St., Portland, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 2-5. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh, Secretary.

Rocky Mountain Medical Conference, Salt Lake City, Sept. 5-7. Mr. W. H. Tibbals, 610 McIntyre Bldg., Salt Lake City, Secretary.

Utah State Medical Association, Salt Lake City, Sept. 5-7. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.

Virginia, Medical Society of, Richmond, Oct. 3-5. Miss Agnes V. Edwards, 1200 East Clay St., Richmond, Secretary.

Washington State Association, Spokane, Aug. 28-30. Dr. V. W. Spickard, 1305 Fourth Ave., Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 13-15. Mr. J. G. Crownhart, 119 East Washington Ave., Madison, Secretary.

Wyoming State Medical Society, Salt Lake City, Utah, Sept. 5-7. Dr. M. C. Keith, 156 South Center St., Casper, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

41: 873-1078 (June) 1939

Roentgenologic Diagnosis of Cancer of Cardia. B. R. Kirklin, Rochester, Minn.—p. 873.
Vascular Tumors and Anomalies of Skull and Brain: From Roentgenologic Point of View. C. W. Schwartz, New York.—p. 881.
*Roentgenologic Manifestations of Pulmonary Embolism with Infarction of Lung. J. Jellen, Los Angeles.—p. 901.
Primary Sarcoma of Bronchus: Case Report. B. S. Pollak, S. Cohen, M. G. Borrone and A. M. Gnassi, Jersey City, N. J.—p. 909.
Diseases of Pleura. A. F. Tyler, Omaha.—p. 915.
Paradoxical Movement of Diaphragm and Mediastinal Shift: Cinefluorographic Studies. W. H. Stewart and F. H. Ghiselin, New York.—p. 926.
Calcification in Splenic Region. A. L. Bachman, New York.—p. 931.
Histologic Studies of Liver, Spleen and Bone Marrow in Dogs Following Intravenous Injection of Thorium Dioxide. E. A. Pohle and G. Ritchie, Madison, Wis.—p. 950.
Physiologic Effects of Radiation: II. In Vitro Lethal Single Massive Roentgen Ray Dose (at 200 Kv.) for Brown-Pearce Rabbit Epithelioma. O. de P. Sahler and S. L. Warren, Rochester, N. Y.—p. 954.
*Roentgen Rays in Diagnosis and Treatment of Tumors of Bladder. G. E. Pfahler, Philadelphia.—p. 962.
Parathyroidism: Effect of Irradiation of Neck on Repair of Bone Lesions. H. W. Jacox, J. M. King and F. R. Bailey, Pittsburgh.—p. 970.
Surgical and Radiation Treatment of Various Phases of Carcinoma of Breast. I. Levin, New York.—p. 979.
Ionization in Air and in Gas Mixtures Approximating Composition of Tissues. R. Naidu, Bombay, India.—p. 992.
Half-Value Layer Measurements with 1,000 Kv. Roentgen Tube. T. Lauritsen, Pasadena, Calif.—p. 999.
Depth Dose Measurements with 1,000 Kv. Roentgen Tube. T. Lauritsen, Pasadena, Calif.—p. 1003.
Filing and Cross-Indexing Roentgen Ray Records: Demonstration of Simple and Efficient Method. F. J. Hodges and I. Lampe, Ann Arbor, Mich.—p. 1007.

X-Ray Signs of Pulmonary Embolism with Infarction.—The clinical, pathologic and x-ray features of pulmonary infarction are described by Jellen. The material presented is based on a review of eighteen cases. X-ray evidence of a pulmonary embolus is usually absent unless infarction of the lung takes place. The shadow of an infarct may be absent early and not appear for several days after the onset of a pulmonary embolus. Accentuation of the hilar shadows and pulmonary vessels occurs on the affected side. The region of the costophrenic sulcus is clouded. Triangular, round, oval or irregular shadows are seen in the lung. The diaphragm on the affected side is elevated. Resolution of the infarct at the periphery of the lesion takes place in some cases. There is evidence of associated pleurisy. Localized rarefaction indicating necrosis or abscess formation and pleural thickening and localized fibrosis are present as evidence of old infarcts. Infarcts are distinguished with difficulty in chronic passive congestion of the lungs. An associated pleural effusion, when present, may mask the shadow of the infarct. A prominence of the pulmonary conus, with evidence of right ventricular enlargement, may be observed in "cor pulmonale" if right-sided heart failure is present.

X-Ray Diagnosis and Treatment of Bladder Tumors.—From June 8, 1928, to June 1935 Pfahler treated fourteen cases of primary inoperable carcinoma of the bladder by roentgen radiation. Seven of these patients, he states, have been free from any demonstrable carcinoma for from two to nine years. Since that date he has treated eight other patients. He points out that his results compare favorably with those of Ferguson and his associates, who have reported forty-eight cases treated by distant external irradiation, twenty of which (thirty-six were examined) showed complete disappearance of the tumors approximately three and a half years later. In the author's successful cases the smallest estimated tumor dose was 2,450 roentgens. The disease was far advanced and only palliation was expected. The largest tumor dose in his failures was 9,700 roentgens. This patient was apparently well during six months. The bleeding usually stops in from three to four weeks. The bladder generally becomes more irritable under treatment and frequency of urination is increased. Pain in the successful cases is usually relieved in from one to three weeks. The tumor may show a marked reduction within six weeks and total disappearance within three months. The more resistant types may show no reduction in three months and yet may disappear completely within six months. In the unsuccessful cases, partial or complete freedom of all symptoms lasting for several months may be obtained and then hematuria, frequency and pain may recur and failure may result. All in all, some improvement in nearly all inoperable cases may be expected and probably a permanent recovery in 35 per cent. Enough radiation must be delivered into the tumor tissue to destroy the cancer cells. This will require from 3,000 to 4,000 roentgens delivered into the tumor area. This result must be accomplished without serious or permanent damage to the patient's normal tissues. The author plans to give treatment to the patient through as many ports of entry (from four to seven) as is possible which will permit accurate cross-firing on the disease; and, by delivering from 200 to 250 roentgens daily or 150 roentgens twice daily, less damage is done to the overlying tissues and probably the best results are obtained. The author uses 200 kilovolts constant potential and 2 mm. of copper filtration or its equivalent in the Thoraeus filter, usually at a distance of 50 cm., making use either of 2 or 4 milliamperes of current, so as to prolong the irradiation effect as much as possible. The treatment must be given in a manner consistent with the patient's general condition. Radiation sickness does not often occur in these cases. Sufficient tonics and medication are given to keep the patient in as healthy and comfortable a condition as is possible. Repeated examinations by cystoscopy or pneumocystography must be made to determine what has been accomplished and then the treatment supplemented when necessary so as to eliminate all the disease. Some adjuvant treatment may be found which will permit a reduction in the total amount of radiation. When a carcinoma of the bladder reaches a stationary stage and yet has not disappeared completely under irradiation, it seems advisable for the cystoscopist to destroy the remnant under the guidance of the cystoscope. This seems to render the tumor more radiosensitive again, if radiation treatment is given rather promptly after the destruction.

Annals of Surgery, Philadelphia

110: 1-160 (July) 1939

Carcinoma of Colon and Rectum: Deductions from 800 Operations. F. H. Lahey, Boston.—p. 1.
Technic and Demonstrable Advantages of Devine Colostomy. R. H. Jackson, Madison, Wis.—p. 14.
Effect of Acute Intestinal Obstruction on Blood and Plasma Volumes. S. Gendel and J. Fine, Boston.—p. 25.
*Study of Results of Medical Treatment of Duodenal Ulcer. F. B. St. John and C. A. Flood, New York.—p. 37.
Internal Biliary Fistulas and Intestinal Obstructions Due to Gallstones. A. M. McQueeney, Bridgeport, Conn.—p. 50.
Choledochus Cyst with Double Common Bile Duct: Sequelae and Complications. S. Dana Weeder, Philadelphia.—p. 55.
Double Gallbladder with Two Cystic Ducts and Two Cystic Arteries. C. L. Wilson, Jamestown, N. Y.—p. 60.
Effect of Dehydrocholic Acid on Biliary Pressure and Its Clinical Application. R. R. Best, N. F. Hicken and A. I. Finlayson, Omaha.—p. 67.
Habitual Dislocation of Digital Extensor Tendons. R. R. Fitzgerald, Montreal.—p. 81.
Studies of Cyclopropane: Use of Barbiturates in Preventing Cardiac Irregularities Under Cyclopropane or Morphine and Cyclopropane Anesthesia: Experimental Study. B. H. Robbins, J. H. Baxter Jr. and O. G. Fitzhugh, Nashville, Tenn.—p. 84.
*Application of Carbamide (Urea) Therapy in Wound Healing. H. G. Holder and E. M. MacKay, La Jolla, Calif.—p. 94.
Gas Gangrene. E. D. Newell, Chattanooga, Tenn.—p. 100.
Fractures and Dislocations by Muscular Violence, Complicating Convulsions Induced by Metrazol for Schizophrenia. L. Carp, New York.—p. 107.
*Use of Vitallium as Material for Internal Fixation of Fractures. W. C. Campbell and J. S. Speed, Memphis, Tenn.—p. 119.

Results of Medical Treatment of Duodenal Ulcer.—St. John and Flood report the follow-up results of the medical treatment of 225 clinic patients whose symptoms of duodenal ulcer were severe enough to require hospitalization. Symptoms recurred in the majority of patients who were followed for

more than two years. In most instances recurrences were mild and readily controlled by further medical therapy. Approximately 75 per cent of patients were symptom free during each six months period of follow-up observation. Certain groups of patients had an unsatisfactory prognosis in comparison with other patients. The majority of patients with persistent pain lasting for more than two weeks during hospital treatment had an unsatisfactory follow-up course. When patients of this type suffered an early recurrence of symptoms after discharge from the hospital, the results were even worse. Patients who had had three or more gross hemorrhages due to duodenal ulcer were not more prone to have recurrences than the average patient in the series. When recurrence took place, however, the symptoms were more apt to be severe. Prolonged medical treatment was undertaken of a few patients with persistent pyloric obstruction. The results were unsatisfactory. The patients who were found to have a prognosis better than average were those with uncomplicated duodenal ulcer who had complete relief of pain within twenty-four hours of hospitalization and the majority of those who were hospitalized for an initial gross hemorrhage without associated pain or obstruction. The follow-up was satisfactory in these last patients.

Carbamide (Urea) Therapy in Wound Healing.—Holder and MacKay discuss the efficacy of carbamide (urea), after an experience of two years, as an adjunct to wound healing. They are still of the opinion that, although the mild bactericidal action of carbamide is of some consequence, the chief value of the compound in wound healing is due to its remarkable solvent action on protein compounds. There is some evidence that dilute urea solutions produce proliferation of capillaries by sprouting and may thus aid in wound healing. However, they prefer to avoid dilute urea solutions because of the excellent medium for bacterial growth which they provide and the superior results obtained with higher concentrations.

Vitallium for Fixation of Fractures.—Campbell and Speed used vitallium, a nonferrous alloy, in the form of plates or screws, or both, as a material for internal fixation of sixty-five various types of fractures. Its negligible electrolytic action (proved by lack of inflammation in the tissues about the plates) and the absence of absorption of bone about the screws, has made vitallium a dependable material for the fixation of fractures even in the presence of gross infection. The use of vitallium for internal fixation in infected compound fractures will prevent the spread of infection of the sequestration of devitalized portions of bone. Experimental and clinical evidence indicates that vitallium will aid in reducing these complications to a minimum and that the screws will hold the plate firmly in position, preventing displacement of the bone fragments until firm union is established.

Archives of Physical Therapy, Chicago

20: 321-384 (June) 1939

Chronic Recurring Sciatica: Diagnosis and Treatment of Protrusions of Ruptured Intervertebral Disks. A. W. Adson, Rochester, Minn.—p. 325.
*Short Wave Diathermy in Pyogenic Infections About Head and Neck. W. J. Egan, Milwaukee.—p. 331.
Rationale of Short Wave Diathermy in Acute Sinusitis. F. Jouard, New York.—p. 338.
Status of Transurethral Prostatic Resection. H. C. Myers, Philippi, W. Va.—p. 342.
Clinical Results of Fever Therapy. E. C. Elkins and F. H. Krusen, Rochester, Minn.—p. 346.
Infra-Red Photography in Diagnosis of Vascular Tumors. F. Ronchese, Providence, R. I.—p. 354.
Gastro-Intestinal Therapy in Atrophic Arthritis. E. Goldfain, Oklahoma City.—p. 357.
Psychologic Importance of Play in a Children's Hospital. Anne M. Smith, Chicago.—p. 361.

Short Wave Diathermy in Pyogenic Infections.—Egan believes ultrashort wave diathermy is indicated for the treatment of pyogenic infections at any stage of the lesion; that it is analgesic and antispasmodic and that it can produce an intense and lasting hyperemia. The physiologic aspects of the effect of ultrashort wave diathermy on the lymphatic system have not been determined. In all his cases, without exception, when lymphangitis or lymph adenitis was associated with infections, such lymphatic manifestation disappeared with ultrashort wave therapy. This, he believes, may explain the efficacy of this therapy in facial infections because of the rich lymphatic supply of facial connective tissue.

Canadian Medical Association Journal, Montreal

41: 1-110 (July) 1939

Dangers of Protamine Zinc Insulin. I. M. Rabinowitch, Montreal.—p. 5.
Masked Diseases. E. P. Scarlett, Calgary, Alta.—p. 12.
*Sulfanilamide and Sulfapyridine in Treatment of Disease in Children. N. Silverthorne, A. Brown and W. J. Auger, Toronto.—p. 16.
Changes in Fundus Oculi Following Splanchnectomy for Malignant Hypertension. F. T. Tooke and J. V. V. Nicholls, Montreal.—p. 21.
Principles of Tendon Suture in Hands. J. H. Couch, Toronto.—p. 27.
Pulmonary Collapse as Cause of Neonatal Death. J. C. Paterson and J. T. Farr, Regina, Sask.—p. 31.
Effect of Heparin on Portal Thrombosis: Its Use in Mesenteric Thrombosis and Following Splenectomy. G. Murray and R. MacKenzie, Toronto.—p. 38.
Conservative Treatment for Fracture of Os Calcis. H. G. Pretty, Montreal.—p. 40.
Two Unusual Cases of Hemothorax. D. F. McRae, Winnipeg, Man.—p. 45.
Toxicity of Estrogens, with Special Reference to Diethylstilbestrol. H. Selye, Montreal.—p. 48.
Indications for Surgery in Peptic Ulcer. G. Miller, Montreal.—p. 50.
Diagnosis and Management of Urologic Cases. R. A. McComb, Toronto.—p. 55.
Etiology and Treatment of Pelvic Floor Insufficiency. D. S. Macnab, Calgary, Alta.—p. 59.
*Methemoglobinemia and Sulfhemoglobinemia Due to Sulfanilamide. E. H. Bensley and Betty Wilén, Montreal.—p. 62.
Insulin Shock Treatment with Schizophrenia. E. Johnson, Selkirk, Man.—p. 64.

Sulfanilamide and Sulfapyridine in Children.—Silverthorne and his co-workers state that in children sulfanilamide has reduced the mortality in streptococcic septicemia from 91 to 50 per cent and in streptococcic meningitis from 98 to 50 per cent. The drug had no effect in the treatment of eight cases of pneumococcic meningitis and questionable effect in the treatment of eight cases of influenzal meningitis. Before the use of sulfanilamide the mortality in streptococcic peritonitis was 100 per cent in forty-two cases between 1923 and 1936. Of eight patients treated between 1938 and 1939 with sulfanilamide, four have recovered. In the treatment of erysipelas sulfanilamide shortens the course of the disease from seven to 1.7 days. The dosage that the authors used has been higher than that usually recommended; from 20 to 30 grains (1.3 to 2 Gm.) to 20 pounds (9 Kg.) of body weight daily. Two patients with pneumococcic meningitis have recovered after the use of sulfapyridine. The course of the disease of ten control patients with pneumococcus type I pneumonia was 8.8 days, of eleven sulfapyridine-treated six and a half days and of eleven serum-treated patients six days. Sulfapyridine has not favorably affected the course of staphylococcic infections. The authors agree with Maclean, Rogers and Fleming that "there are still fatal cases among those treated by chemotherapy, and as it is impossible to say offhand whether the infecting pneumococcus is very sensitive to sulfapyridine or not, we suggest that to obtain the best results chemotherapy should be combined with immunotherapy."

Methemoglobinemia and Sulfhemoglobinemia Due to Sulfanilamide.—Bensley and Wilén report the incidence of methemoglobinemia and sulfhemoglobinemia in 200 adults treated with sulfanilamide by mouth. Methemoglobin was diagnosed in fifty-three of the 200 cases, an incidence of 26.5 per cent. Sulfhemoglobin occurred in only two of the 200 cases, an incidence of 1 per cent. According to the authors' experience to date, there appears to be no relationship between the occurrence of these abnormal blood pigments and the tendency toward the known toxic effects of sulfanilamide; neither agranulocytosis nor acute hemolytic anemia has as yet been encountered in their hospital. A possible harmful effect of methemoglobinemia and sulfhemoglobinemia is reduction of the oxygen-carrying power of the blood. This would apply particularly to disorders which in themselves tend to cause anoxemia (pneumonia, anemia and the like). The exact cause of sulfhemoglobin formation is not known. Intestinal disease is suggested as a possible etiologic factor in the two cases cited. Data are reported which suggest a causal relationship between concentration of free sulfanilamide in the blood and the formation of methemoglobin. No such relation was found with respect to concentration of conjugated sulfanilamide. Reduction of the dosage of sulfanilamide alone reduces the degree of methemoglobinemia. When reduction is inadvisable and there is a danger of anoxemia, the latter may

be controlled by blood transfusions or, as Wendel has shown, by intravenous injection of methylene blue. To be most effective and prevent recurrence of methemoglobinemia the injections of methylene blue must be repeated approximately every eight hours. Unlike methemoglobinemia, blood transfusion is the only method known at present for the treatment of sulfhemoglobinemia.

Delaware State Medical Journal, Wilmington

11: 133-152 (June) 1939

Some Problems and Methods of Diagnosis of Cretinism and Juvenile Hypothyroidism. L. Wilkins, Baltimore.—p. 133.
Clinical Allergy. R. A. Kern, Philadelphia.—p. 139.
Principles Involved in Diagnosis and Treatment of Allergy, with Discussion of Hay Fever. J. Miller, Philadelphia.—p. 144.

Illinois Medical Journal, Chicago

76: 1-100 (July) 1939

Wound Infection and Compound Fractures. H. W. Orr, Lincoln, Neb.—p. 71.
Endocrine Disorders from a Public Health Aspect. J. H. Hutton, Chicago.—p. 78.
Some Pitfalls of Roentgenologic Diagnosis. L. M. Hilt, Grand Rapids, Mich.—p. 83.
Illinois Pneumonia Control Program. H. A. Lindberg, Chicago.—p. 85.
Role of Cevitamic Acid in Various Clinical Conditions. M. A. Spellberg, Chicago.—p. 90.

Iowa State Medical Society Journal, Des Moines

29: 275-372 (July) 1939

Treatment of Hypoparathyroidism: Discussion of Use and Action of Dihydrotachysterol (A. T. 10). J. A. Greene and L. W. Swanson, Iowa City.—p. 275.
Medicolegal Aspect of Alcohol in Road Accidents. T. G. Garfield, Ames.—p. 279.
Effects of Alcohol on Driving. A. R. Lauer, Ames.—p. 282.
Determination of Alcohol in Blood and Urine. H. W. Morgan, Mason City.—p. 285.
*Human Equine Encephalomyelitis. R. N. Larimer and E. G. Wiesser, Sioux City.—p. 287.
Treatment of Precancerous Lesions of Uterine Cervix. J. N. Bickert, Cedar Rapids.—p. 289.

Human Equine Encephalomyelitis.—Larimer and Wiesser state that during August and September of 1938 sixteen cases presenting features of meningitis, but with unusual spinal fluid changes, were seen in St. Joseph's Hospital. In eleven the condition was characterized by a sudden onset with headache and fever. The remaining patients had indefinite complaints of headache or fatigue for as long as seven days before calling their physician. Headache, stiff neck and a positive Kernig's sign were relatively constant, and usually pathologic reflexes were transient. Spinal fluid changes included an increase in the cell counts, especially in the lymphocyte series, normal or increased sugar content, and the absence of organisms in smears and cultures. The course characteristically was short, the fever remaining high for about five days. No relation between severity of symptoms, physical signs or spinal fluid changes and the mortality rate was noted. Cells in the spinal fluid were no more numerous in the four fatal cases than in the twelve cases in which recovery occurred. The twelve patients who recovered showed no sequelae at the time of dismissal. The histories of these cases reveal their close resemblance to epidemic encephalitis, human equine encephalomyelitis, benign lymphocytic meningitis, choriomeningitis, poliencephalitis and other conditions. Infection in more than one member of a family was not encountered. As the area from which the cases of this report came has had an epidemic of "equine encephalitis," with definite exposure to horses so affected in six of the ten reported, it has seemed probable that these cases were caused by a similar infective agent. However, the authors state that they have no proof for this impression. Treatment in these cases consisted chiefly of repeated spinal punctures and other means of reducing intracranial pressure. Fluids in amounts of from 50 to 100 cc. were given intravenously. Sulfanilamide was given an intensive trial but did not seem to alter the course of the disease. Morphine in large doses provided the best means of relief of headache. Moderately large doses of magnesium sulfate by mouth or rectum seemed to have a favorable effect. Autohemotherapy in one case seemed valueless. Convalescent serum was not tried but would deserve trial if one were sure of the diagnosis.

Journal of Thoracic Surgery, St. Louis

8: 469-580 (June) 1939

*Chone-Chondrosternon: Report of Case and Review of Literature. A. Ochsner and M. DeBakey, New Orleans.—p. 469.
Cinefluoroscopic Studies of Peculiar Breathing and Chest Motion. O. C. Pickhardt, W. H. Stewart and G. Thorburn, New York.—p. 512.
Diagnostic Significance of Scoliosis in Intrathoracic Disease. W. D. Andrus and C. W. Holman, New York.—p. 520.
Experimental Observations on Effects of Connecting by Suture Left Main Pulmonary Artery to Systemic Circulation. S. E. Levy and A. Blalock, Nashville, Tenn.—p. 525.
Fatal Accidental Anoxemia Resulting from Bronchopleural Fistula Following Total Pneumonectomy. A. S. W. Touroff, New York.—p. 531.
Venous Pressure in Pulmonary Tuberculosis: Effect of Collapse Therapy and Other Complications. F. H. Heise and J. H. Steidl, Trudeau, N. Y.—p. 539.
Studies of Jugular, Carotid and Pulmonary Pressures of Anesthetized Dogs During Positive Inflation of Lungs. G. H. Humphreys, R. L. Moore and H. Barkley, New York.—p. 553.
Pulmonary Artery Arising from Abdominal Aorta. M. Batts Jr., Ann Arbor, Mich.—p. 565.
Actinomycosis Thoracis: Report of Two Arrested Cases. J. D. Bisgard, Omaha.—p. 570
Stab Wound of Heart: Report of Case Treated Conservatively. J. W. Strieder, Boston.—p. 576.

Chone-Chondrosternon.—Ochsner and DeBakey consider the term chone-chondrosternon preferable to the previously used terms (funnel chest, pectus excavatum, koilosternia, trichterbrust, thorax en entonnoir) describing the thoracic deformity which is usually a congenital and rarely an acquired depression of the lower portion of the sternum and the adjacent costal cartilages which become progressively more marked as the patient grows. They review the literature from the standpoint of etiology and pathogenesis and find that the most prominent congenital characteristics are heredity, growth disturbances (sternal developmental arrests, costal overgrowth, delayed sternal ossification, muscle contracture and hyperpituitarism), mediastinitis, mechanical intra-uterine compression and syphilis. The acquired factors consist of rickets, trauma and faulty posture. Chone-chondrosternon was found to occur in 0.059 per cent of a total of 46,705 persons examined. The sex incidence was found to be 78.1 per cent males and 21.8 per cent females in 268 collected cases. There are frequently no subjective or objective clinical manifestations. However, when they are present these consist of cardiac disturbances such as dyspnea, palpitation, precordial pain and in rare instances decompensation; pulmonary disturbances such as dyspnea, cyanosis, cough and diminished vital capacity; and digestive disturbances such as dysphagia and dyspepsia. In general the patients are of asthenic habitus and usually display characteristic weakness and debility. Frequently they are not resistant to infection and have a tendency toward bronchitis and tuberculosis. Treatment may be divided into conservative and operative. The conservative methods consist of breathing and postural exercises and orthopedic measures. The various operative procedures are of three types: chondrosternal resection, T sternotomy with or without costal cartilage division and traction, and sternal mobilization and costochondronal division or resection. The authors report in detail a case of the third type and describe the operative procedure employed. Examination approximately one year after operation revealed that correction of the thoracic deformity had been maintained and that the symptoms were relieved completely.

New England Journal of Medicine, Boston

220: 1061-1098 (June 29) 1939

*Ascorbic Acid Requirements in Patients with Peptic Ulcer. H. A. Warren, M. Pijoan and E. S. Emery Jr., Boston.—p. 1061.
Fracture of First Rib Due to Muscle Pull: Report of Case. A. P. Aitken and R. E. Lincoln, Boston.—p. 1063.
Twenty-Five Nonreaders. M. E. Kirkpatrick, New York.—p. 1064.
Physiology. H. E. Hoff, New Haven, Conn.—p. 1067.

Ascorbic Acid Requirements in Peptic Ulcer.—Warren and his associates determined the ascorbic acid requirements of patients with peptic ulcer. They found that five patients with duodenal ulcer utilized 20 per cent more ascorbic acid than did normal individuals. There was no evidence that they were unable to absorb the drug when given by mouth. It was also found that these patients had been taking diets deficient in vitamin C. The usual Sippy diet contains much less vitamin C than is normally required. This deficiency can be easily compensated for by including in the daily diet the juice of one or two good sized fresh oranges.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Journal of Hygiene, London

39: 217-344 (May) 1939. Partial Index

Somatic and X Agglutinins to Salmonella Group. J. C. Cruickshank.—p. 224.
Studies on Pleuropneumonia-like Organisms: L4 Organism as Cause of Woglom's "Pyogenic Virus." Emmy Klieneberger.—p. 260.
Nature of Pyogenic Filtrable Agent in the White Rat. W. H. Woglom and J. Warren.—p. 266.
Contributions to Mathematical Theory of Epidemics: V. Analysis of Experimental Epidemics of Mouse Typhoid; Bacterial Disease Conferring Incomplete Immunity. W. O. Kermack and A. G. McKendrick.—p. 271.
*Slide Agglutination Test for Exclusion and Diagnosis of Typhoid Fever. F. M. Berger and G. Brecher.—p. 294.
Role of the Spirochete in Wassermann Reaction. A. Beck.—p. 298.
Bacteriologic Findings in Epidemic of Sonne Dysentery. A. Beck and D. F. Buckle.—p. 311.
Occurrence of Weil's Disease Among Miners in the West of Scotland. R. D. Stuart.—p. 316.
Observations Concerning Bacillary Food Infection in Dundee During the Period 1923-1938. W. J. Tulloch.—p. 324.
Relationship of Field Rodents to Plague in Kenya. J. I. Roberts.—p. 334.

Exclusion and Diagnosis of Typhoid.—Berger and Brecher describe a sensitive antigen suspension for use with a simple slide agglutination method which makes possible a serologic diagnosis or exclusion of typhoid without recourse to a laboratory. They employed the method on 414 serums sent to their laboratory and the procedure detected all cases with a titer of 1:80 or more, and most of those with a titer of 1:40. The method was further tested in 130 clinically observed cases, in which it gave satisfactory results. It gave a positive result in ninety-eight of 100 serums from patients with typhoid, whereas the Widal reaction gave a positive result in only sixty-eight. The intensity and rapidity of the slide agglutination reaction provide a rough measure of the titer of a serum. A quick and distinct agglutination indicates a titer of 1:80 or more and is diagnostic of typhoid. A slow and indistinct result is obtained when the titer of the serum is about 1:40. A negative test indicates with great probability that a diagnosis of typhoid may be excluded. The authors believe that the method succeeds because the nature of the suspension employed and the peculiar behavior of slide agglutinations permit the detection of O as well as H agglutinins.

Journal of Laryngology and Otology, London

54: 319-378 (June) 1939

Otitic Hydrocephalus: Record of Seven Cases, with Two Cases Simulating the Condition. N. Asherson.—p. 319.
Treatment of Dysphonia and Allied Conditions. C. MacMahon.—p. 343.

Journal of Pathology and Bacteriology, Edinburgh

48: 493-636 (May) 1939

*Liver Necrosis Following Burns, Simulating Lesions of Yellow Fever. T. H. Belt.—p. 493.
Complex Malignant Mammary Tumor. G. R. Tudhope.—p. 499.
Effect of Blood Treated by Heat, Acid or Alkali on Growth of Corynebacterium Diphtheriae. V. Glass.—p. 507.
Complementary Activity of Blood Serum in Nephritis. C. E. Kellett and J. G. Thomson.—p. 519.
Neoplastic Invasion of Pulmonary Veins and Left Auricle. S. McDonald Jr. and J. C. Heather.—p. 533.
Staphylococcic Infection in Rabbits: Antibacterial and Nonspecific Immunity. S. T. Cowan.—p. 545.
Action of Bile Salts on Viruses. W. Smith.—p. 557.
Suitability of "Liquoid" for Use in Blood Culture Mediums, with Particular Reference to Anaerobic Streptococci. E. D. Hoare.—p. 573.
Infectious Polyarthritis of Rats. W. A. Collier.—p. 579.
Structure of Teeth in a Late Case of Osteogenesis Imperfecta. M. A. Rushton.—p. 591.

Liver Necrosis Following Burns.—Belt reports cases of fatal burns which present a highly distinctive liver picture which seems on the face of it to be linked with the toxemia of burns. The hepatic damage was severe with numerous intranuclear inclusions as numerous and typical as those observed in virus diseases. Councilman lesions were much in evidence and the author states that they can hardly be regarded as true cytoplasmic inclusion bodies. Yet the lesion is something of the same order and it finds its chief association with virus diseases, namely yellow fever and Rift Valley fever. It is possibly a nonspecific cytoplasmic degeneration but, like the nuclear changes, sufficiently distinctive to suggest some common etiologic factor underlying its various occurrences. There was widespread midzonal necrosis producing marked disorganization of the parenchyma. The necrosis consists of hyalinization and fragmentation of liver cells. It involves the cells somewhat unevenly, sparing some altogether, affecting others only in part. There is an associated fatty change of moderate degree which gives the cytoplasm a rather moth-eaten appearance. On the basis of the present study the author believes that he can do no more than point out that the toxemia in certain cases of burns produces an effect on the liver similar to that observed in certain virus diseases and to suggest, therefore, that the noxious agent in the two instances, whatever it may be, whether virus or toxin, is of a similar character.

Journal of Tropical Medicine and Hygiene, London

42: 141-156 (May 15) 1939

Some Figures on Incidence of Dermatophytosis. P. K. Fraser.—p. 141.
Filarial Infection in Relation to Physiographic Changes in Two Localities in Ceylon. W. L. P. Dassanayake.—p. 145.

Lancet, London

1: 1193-1246 (May 27) 1939

*Bacterial Infection During Intracranial Operations. H. Cairns.—p. 1193.
Simple Method for Measuring Clot Retraction. R. G. Macfarlane.—p. 1199.
Compound Fractures of Shafts of Long Bones. H. Poston.—p. 1201.
Climate as Factor in Epidemic Meningitis in Kordofan. N. L. Corkill.—p. 1203.
*Effect of Follicular Hormone on Menopausal Flushes. B. C. Murless.—p. 1205.
Acquired Tolerance of Pneumococcus to Sulfapyridine. R. W. Ross.—p. 1207.

Bacterial Infection During Intracranial Operations.—Cairns discusses the dangers of infection during an intracranial operation by surveying a twelve year series of major operations for intracranial tumor and allied conditions. There were 968 operations on 846 patients. There were twenty-three deaths from infection. The fatal cases included infections from Staphylococcus albus and aureus, streptococcus, Diplococcus mucosus, Micrococcus tetragenus, a bacillus of the Sonne type and gram-negative bacilli heretofore regarded as harmless to man. Until special measures were taken the incidence of intracranial infection increased as the operative mortality from other causes diminished. The brain itself offers considerable resistance to bacterial infection. Most fatal intracranial infections are due to inoculation of the infecting organism into the larger subarachnoid spaces or into the ventricles. Mild infections of the basal cisterns without gross pyogenic reaction can be fatal by producing adhesive meningitis. Therefore to decrease intracranial infection the following should be considered: the efficiency of sterilizing and operative technic, decreasing the bacterial content of the operating room, adequate masking of the operating personnel, administration of sulfanilamides before operation in certain cases, conservation of the blood supply of the scalp in all cases and, so far as possible, that of the arachnoid membrane in operations involving the basal cisterns.

Effect of Estrogen on Menopausal Flushes.—Murless used estrogen in the treatment of fifty-one women suffering from hot flushes incident to menopause induced by radium. In most cases treatment began between the eighth and twelfth weeks after the induced menopause. The largest daily dose of the substance was eight tablets (0.2 mg.). The patient was given four tablets daily, and the dose was increased to six or eight tablets according to the result at the end of fourteen days. After four weeks at the increased dose, if the "flushes" were sufficiently controlled, the dose was reduced to six or four tablets and finally to two. Any improvement noted was as a rule maintained and it proved unnecessary to revert to a larger dose. For control, one of every five women treated was given dummy tablets of lactose, presented in a similar packing. Although some of these said that the severity and duration of the flushes were lessened, there was no reduction of their number. A complete cure was experienced by eleven patients, the average period of treatment being about four weeks; but these were mostly patients with a small number of flushes daily, before treatment started. In only five instances did treatment fail to reduce the number of flushes and in four of these their severity was lessened.

Journal de Médecine de Lyon, Lyons

20: 381-408 (June 20) 1939

Critical Study of Medication with Expectorants. P. Delore, Coudert and Dumont.—p. 381.

*Practical Deductions Drawn from Study of Cutaneous Reactions to Tuberculin in Course of Extrapulmonary Tuberculosis. P. Imbert and J. Martinon.—p. 389.

Tuberculin Tests in Extrapulmonary Tuberculosis.—Imbert and Martinon think that although Mozer, in a recent report on osteo-articular tuberculosis, admits that the tuberculin reactions can be employed in its diagnosis, the cutaneous reactions with tuberculin are still not given the emphasis which they deserve in the diagnosis of surgical tuberculosis. After citing some of the factors responsible for this, they say that in the more than six years that they made observations on nearly 800 subjects (children and adults) affected with or suspected of surgical tuberculosis they were able to confirm the value of cutaneous tuberculin reactions. They stress the following points: 1. In osteo-articular tuberculosis of children, if a correctly made percutaneous reaction is negative and especially if it remains negative when repeated after a suitable term, it is possible that the incriminated focus is not of a tuberculous nature. 2. In osteo-articular tuberculosis of adults, this is true in the majority of cases; in a minority it is necessary to repeat the percutaneous test two or three times. If the intradermal test with crude tuberculin must be made and if the latter test is also negative, it will be necessary to reconsider the diagnosis of active external tuberculosis and at the same time prescribe the measures which seem indicated. 3. In tuberculous peritonitis of adults, although the cutaneous reactions with tuberculin are practically always positive in the course of the serous forms and of the recently discovered forms, the authors observed with rare exception anergy in the caseous forms, in the recent ascitic but drained forms, and especially in the dry old forms the evolution of which seems terminated. 4. Certain localizations of external tuberculosis, especially adenitis and superficial articular processes, lead to manifest hyperallergy. This allergy, on the contrary, is less intense in the patients with peritonitis and in those with involvement of the knee. Further, a severe allergy outside of a recent primary infection necessitates a search for the existence of an active tuberculous focus and in the presence of a lesion makes its tuberculous origin more probable. 5. The authors do not think that irradiation with ultraviolet rays or heliotherapy plays as important a part as has been said in the tuberculin reactions. In so-called surgical tuberculosis this role is practically negligible. 6. The study of allergy, if correctly practiced, is without danger in extrapulmonary tuberculosis.

Revue Belge des Sciences Médicales, Louvain

11: 125-216 (April) 1939

*Duodenocholedochal Reflux and Acute Necrosis of Pancreas. J. Bottin.—p. 125.

Infarct of Mesentery and of Intestine. J. Bottin.—p. 153.

Acute Necrosis of Pancreas. J. Bottin.—p. 183.

Duodenocholedochal Reflux and Acute Necrosis of Pancreas.—Bottin thinks that most pancreatitides of canalicular origin are not due to an action of the bile on the pancreas but to an action of the duodenal juice on the pancreatic gland, the juice coming in contact with the pancreas as a result of a duodenocholedochal and duodenopancreatic communication. 1. He shows that the only experimental method to reproduce acute pancreatic necrosis which sufficiently approaches the condition in human subjects is choledochopancreatic intubation by the intraduodenal route. It demonstrates that bringing the bile in contact with the excretory passages of the pancreas under conditions closely resembling those which in human subjects are said to be the cause of acute pancreatic necrosis does not provoke similar lesions. 2. Cholangiographies carried out by means of a vesical fistula show that in a relatively large number of subjects the bile can be brought into contact with the pancreas by way of the pancreatic duct without producing great damage in the gland. 3. The existence of a spasm of Oddi's sphincter has not been demonstrated as yet and the anatomic structure of this sphincter greatly reduces its significance in the choledochopancreatic reflux of the bile. On the contrary, many factors indicate the possibility of a paralysis or at least of a paresis of this sphincter. 4. The author observed various disorders which may give rise to a paralysis or paresis of Oddi's sphincter (action of concentrated hydrochloric acid on the choledochal papilla, acute cholecystitis, acute necrosis of the pancreas, high intestinal obstruction). 5. In animals a large number of investigators demonstrated under various conditions the reality of a duodenopancreatic reflux. 6. As regards human subjects, reports increase about an ascending pathologic communication between the duodenum and the choledochal canal and even the pancreatic duct. 7. This communication seems more frequent in patients with lithiasic disorders of the extrahepatic biliary passages who have or have not undergone surgical treatment. 8. These observations tend to show that the choledochopancreatic reflux of the bile has only an accessory influence in the development of acute necroses of the pancreas which develop in patients with disorders of the extrahepatic biliary passages. The duodenocholedochal and the duodenopancreatic reflux is probably more important. 9. That the surgical treatment of biliary lithiasis certainly does not protect against acute necrosis of the pancreas is proved by the pancreatic origin of a large number of deaths following operations on the biliary passages; finally relapses of acute necrosis of the pancreas described in recent years make the influence of a duodenocholedochal reflux more probable and the influence of a reflux of bile toward the pancreatic duct less probable. 10. The duodenocholedochal reflux which, according to the author's opinion, assumes a primary role in the development of acute pancreatic necrosis in patients with disorders of the biliary passages is evidently not the only factor which intervenes in these conditions. 11. In healthy subjects, duodenocholedochal reflux is absolutely nonexistent.

Rivista di Clinica Pediatrica, Florence

37: 385-480 (May) 1939. Partial Index

Renal Sclerosis in Children. G. Careddu.—p. 385.

Malignant Granuloma and Miliary Tuberculosis: Case. R. Pachioli.—p. 398.

*Guanidine in Blood in Diseases of Respiratory Tract in Children. A. M. Dordi.—p. 448.

Guanidine in Blood.—Dordi made determinations of the amount of guanidine in the blood of thirty-seven children with acute diseases of the respiratory tract. The method of Major and Weber, as modified by Minot and Dood, was used in the determinations, which were repeated in various phases of the disease. The author found that hyperguanidinemia is more frequent in bronchopneumonia and in purulent pleurisy than in lobar pneumonia. When hyperguanidinemia exists, it is three or four times as high as normal figures. The increase of guanidine in the blood depends exclusively on the presence of enlargement of the liver. It is probably an index of liver dysfunction in the course of the respiratory disease. Variations of guanidine in the blood parallel the evolution of the enlargement of the liver. Persistence of hyperguanidinemia after abatement of fever and of the respiratory symptoms is of a bad prognostic import.

Semana Médica, Buenos Aires

46: 1413-1472 (June 22) 1939. Partial Index

*Blood Transfusion in Bronchopneumonia in Infants. M. J. del Carril and A. E. Larguia.—p. 1439.

Pathogenesis of Hyperthyroidism. E. B. del Castillo and J. Reforzo Membrives.—p. 1452.

Blood Transfusion in Bronchopneumonia in Infants.—Del Carril and Larguia report satisfactory results of blood transfusion in nontuberculous pneumonia and bronchopneumonia in thirty infants. In all cases a clinical and roentgenologic diagnosis of the disease had been made. Fresh 5 per thousand citrated blood was used in the majority of the cases. Preserved blood was administered only in exceptionally rare cases. The largest number of transfusions was administered through the longitudinal sinus. In rare cases transfusion was done through the jugular vein or else by the intraperitoneal route. The amount of blood which was given in each transfusion varied within 10 and 20 cc. of blood for each kilogram of body weight. Giving a transfusion slowly is of great importance. Transfusion has to be administered early in the development of the disease and repeated (if necessary) at intervals of from two to four days, up to control of the toxic and infectious symptoms. Changing donors is advisable when repeated

transfusion is necessary, to prevent possible anaphylactic accidents. Care is to be taken in selecting healthy donors (in relation to the presence of syphilis, malaria and other diseases). The authors found that transfusion controls toxic and infectious symptoms of grave nontuberculous bronchopulmonary diseases in infants, reinforces the natural organic defenses of the patients, and is excellent when it is given following proper indications and early in the development of the disease.

Deutsche Zeitschrift für Chirurgie, Berlin

252: 145-240 (June 17) 1939. Partial Index

*The Role of Arteriography in Neurosurgery. E. Mackh.—p. 145.
Two Remarkable Cases of Subcutaneous Injury of the Abdominal Viscera. F. Haas.—p. 177.
Homoplastic Transplantations of Human Skin with Special Consideration of Blood Characteristics. Binhold.—p. 183.
Antithyrotropic Hormone. P. Sunder-Plassmann and W. Eickhoff.—p. 197.
*Neurohormonal Cells of the Vagus System in the Thyroid. P. Sunder-Plassmann.—p. 210.

Arteriography in Neurosurgery.—In performing arteriography Mackh employs thorium dioxide sol, which he injects with the aid of a record syringe armed with a cannula and without the intervention of a tubular system. Bilateral arteriography is only exceptionally indicated. A secondary arteriography is technically difficult. The method should be performed by the surgeon who undertakes the operation to be followed and who is willing to assume the responsibility for both. The author considers the method entirely harmless. The development of a tumor following the injection of thorium dioxide sol has not been demonstrated either in man or in animal experiments. Chemical analytic studies failed to demonstrate retention of the thorium. Fatalities developing suddenly after injection of thorium dioxide sol are not to be charged to the drug. The field of usefulness of arteriography is neurosurgery and not traumatic surgery. The method is of value in demonstrating tumors of the cerebral hemispheres. It is of no value in tumors of the posterior cranial cavity and in medially located tumors at the base of the cranium, such as those of the hypophysis, the suprasellar tumors, tumors of the third ventricle and craniopharyngomas. Arteriography is better tolerated than ventriculography and is to be preferred for patients in bad condition. An arteriogram is capable of furnishing a topographic and qualitative diagnosis of a tumor and thus renders ventriculography unnecessary. The principal indication for arteriography is for localization and recognition of the kind of tumor in the cerebral hemispheres. In the case of tumors of the temporal lobes, arteriography is indicated for the purpose of localization or when the ventricle of the involved side fails to fill in a ventriculogram. Tumors of the frontal lobes, of the temporal lobes and of the parietal and occipital regions give typical appearances of the blood vessels in arteriograms. An abnormally dilated lumen and atypical and irregular arrangement of the blood vessels suggest a malignant glioma. The diagnosis of the kind of tumor in the temporal lobes is difficult because of a comparative paucity of blood vessels. A pronounced displacement of the middle cerebral artery and of the carotid stem make it possible to diagnose a malignant glioma in this localization. Meningiomas with a parasagittal localization are recognized by the increase in the blood vessels in the corresponding portion of the falx. It is, however, necessary here to take arteriograms in two levels. The differential diagnosis of other benign tumors is largely impossible in an arteriogram. The most valuable aspect of the method is the possibility of establishing in all cases the diagnosis of a malignant glioma and thus to avoid an unnecessary operation.

Neurohormonal Cells in the Thyroid.—According to Sunder-Plassmann there exists in the thyroid a "neurohormonal" system closely associated with the thyroid follicles on the one hand and the parasympathetic portion of the vegetative nervous system on the other. This system is made up of specific cells to which the author applies the name "neurohormonal cells of the vagus system." These cells possess a large, vesicular, pale nucleus which within the follicular wall appear round and outside the follicle almost always oval. These nuclei are surrounded by a wide area of a finely granular protoplasm which imparts to the cells within the follicular wall a polygonal appearance. The neurohormonal cells are supplied with an intraplasmatic and syncytial nervous terminal reticulum. This reticulum can be easily demonstrated in the follicular wall, in the interstitium and in the walls of the blood vessels. According to the author these cells represent the colloid-absorbing cellular system. In the resting gland these cells are found principally in the interstitium, on the periphery of the gland and in some of the follicles, to which they impart an appearance of activation. In the activated glands they are found in larger numbers in the follicular wall and exceed the colloid producing follicular cells. The author refers to the latter as thyreocytes. They possess much smaller, darker nuclei with a thick granular substance. They are arranged polygonally to one another. Their cell outlines are frequently not recognizable, suggesting that they may build a syncytium. The neurohormonal cells are seen to absorb the colloid following a unilateral section of the vagus in the neck. The previously activated thyroid glands become rich in colloid. Glands sensitized and activated by foreign protein rapidly take on the appearance of activated glands. The colloid absorbing neurohormonal cells are likewise found preponderantly in human exophthalmic goiter. They display here a thick oval nucleus when outside the follicular wall and large, pale, round nuclei within the follicle wall. The colloid producing thyreocytes predominate in diffuse colloid goiter of man. The neurohormonal cells are inactive and appear to be of little importance in endemic goiter. The author expresses the opinion that the neurohormonal cells of the vagus system are not confined to the thyroid gland but may be found anywhere in the area controlled by the vagus. This thyroid-vagus system, which may be compared to the sympathetic-adrenal system, may have important tasks to perform for the organism.

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10: 1-219 (Nos. 1-2) 1939

Tuberculous Spondylitis During the Years 1921 to 1932. H. Thomsen.—p. 1.
*Pes Cavus: Its Etiology and Treatment. S. Hallgrimsson.—p. 73.
Epiphysiolysis Capitis Femoris (Coxa Vara Epiphysarea), with Special Reference to Bloodless Reposition Treatment. P. Lütken.—p. 119.
Defects and Pseudarthroses of Bony Bridge Following Paraspinal Bone Transplantation in Growing Rabbits. G. Odelberg-Johnson.—p. 160.

Clawfoot.—Hallgrimsson's study of "idiopathic" clawfoot is based on the observations of 152 unselected patients (fifty-eight men and ninety-four women), fifty-three of whom were subjected to special attention. The age of the patients at the time when the symptoms first appeared ranged between 10 years and under and 26 years and over, most symptoms manifesting themselves between the eleventh and twentieth years. The author's purpose was to investigate the observations of others that many patients with clawfoot showed slight neurologic symptoms, mostly in the form of atrophy, slight spasticity of the lower extremities and atypical plantar response, and to ascertain roentgenologically whether these patients were afflicted with spina bifida occulta or anomalies in the lumbosacral region. Twenty-five of the fifty-three patients had spina bifida and thirty-one had neurologic symptoms, seventeen of these with spina bifida and fourteen without. According to his investigations, spina bifida can scarcely be regarded as the cause of clawfoot nor do the probabilities favor the assumption that poliomyelitis is the causative agent. Neither is the etiologic assumption of congenital myelodysplasia for clawfoot confirmed by microscopic research. Clawfoot may be the genetic offspring of lesions in certain regions of the central nervous system. The particular form of nervous disorder is difficult of detection because the early growth of clawfoot does not reveal its symptoms until the puberal and postpuberal period of life. Symptomatic treatment of clawfoot directed to the deformity and ailments of the foot, the author says, is still in the ascendency. The author points out the advantages of peroneus transplantation over cuneiform osteotomy. The surgical intervention is small, the risk at a minimum, and the curative process one of four weeks, equivalent to one third of the time required for recovery in osteotomic surgery. The drawback is that the disappearance of the symptoms requires from six months to one year, since the arch must have time to flatten and lengthen under the pressure of the weight of the body. Peroneus transplantation is recommended by the author in cases of slight and medium clawfoot, especially when torsion of the foot predominates.